

SEQUENCE LISTING

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<110> Reed, John C.

<120> Novel Card Proteins Involved in Cell Death Regulation

<130> P-LJ 3650

<140> 09/388,221

<141> 1999-09-01

<160> 30

<170> PatentIn Ver. 2.0

<210> 1

<211> 4422

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)..(4422)

<400> 1

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Lys Lys Glu Glu Leu Lys Glu Phe Gln Leu Leu Leu Ala Asn Lys Ala
20 25 30

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Leu	Pro	Glu	Ala	Ser	Phe	Leu	Ile	Thr	Ala	Arg	Thr	Thr	Ala	Leu	Gln	
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Asn	Leu	Ile	Pro	Ser	Leu	Glu	Gln	Ala	Arg	Trp	Val	Glu	Val	Leu	Gly	
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Phe	Ser	Glu	Ser	Ser	Arg	Lys	Glu	Tyr	Phe	Tyr	Arg	Tyr	Phe	Thr	Asp	
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Cys	Leu	Met	Gln	Gln	Met	Lys	Arg	Lys	Glu	Lys	Leu	Thr	Leu	Thr	Ser	
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Ile	Leu	Gln	Glu	His	Pro	Ile	Pro	Leu	Ser	Tyr	Ser	Phe	Ile	His	Leu	
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Phe	Leu	Leu	Gly	Leu	Leu	Ser	Asp	Glu	Gly	Glu	Arg	Glu	Met	Glu	Asn	
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Ile	Phe	His	Cys	Arg	Leu	Ser	Gln	Gly	Arg	Asn	Leu	Met	Gln	Trp	Val	
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Pro	Ser	Leu	Gln	Leu	Leu	Leu	Gln	Pro	His	Ser	Leu	Glu	Ser	Leu	His	
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Cys	Leu	Tyr	Glu	Thr	Arg	Asn	Lys	Thr	Phe	Leu	Thr	Gln	Val	Met	Ala	
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785			3		790				•	795	-	-			800	
703					750					755					000	
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200	222	a a t	222	+ ~ ~	ata	at a	<i>a</i> 2 <i>a</i>	200	cta	caa	++~	act	aac	+ a+	aac	2544
_	-		_						ctg							2344
Arg	Arg		Arg	Cys	Leu	Leu	Glu	Thr	Leu	Arg	Leu	Ala	GIY	Cys	GTA	
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His Phe Glu Glu Met Gly Met Cys Val Glu Thr Asp Met Glu Leu Leu

850 855 860

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965 970 975

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Val Leu Leu Lys N	Met Ile His	Asn Ala Leu <i>l</i>	Arg Phe Ile Pro Val Thr
1220		1225	1230
tct gtg gtg ttg	ctt tac cac	cgc gtc cat (cct gag gaa gtc acc ttc 3744
Ser Val Val Leu I	Leu Tyr His .	Arg Val His I	Pro Glu Glu Val Thr Phe
1235	1	240	1245
cac ctc tac ctg a	atc cca agt	gac tgc tcc a	att cgg aag gcc ata gat 3792
His Leu Tyr Leu	Ile Pro Ser .	Asp Cys Ser	Ile Arg Lys Ala Ile Asp
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gat cta gaa atg a	aaa ttc cag	ttt gtg cga a	atc cac aag cca ccc ccg 3840
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Ser Gly Met Leu (Glu Ile Leu	Pro Lys Glu	Leu Glu Leu Cys Tyr Arg
1300		1305	1310

3304	LLG	CaC	ggc	ycc	tac	LLC	gag	LUG	ELC	ctg	cag	gac	gaa	gga	CCE	agc
	Leu	His	Gly	Val	Tyr	Phe	Glu	Ser	Phe	Leu	Gln	Asp	Glu	Gly	Pro	Ser
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4032	ctg	act	gag	gat	aaa	aag	gac	aaa	gtg	caa	ctg	agg	atc	ggg	tca	gga
	Leu	Thr	Glu	Asp	Lys	Lys	Asp	Lys	Val	Gln	Leu	Arg	Ile	Gly	Ser	Gly
					1340	1				1335	-				1330	-
4080	act	act	gca	cct	atg	ctc	gat	gga	сса	aaa	gtg	ttg	gcc	gag	tgg	gtg
	Thr	Thr	Ala	Pro	Met	Leu	Asp	Gly	Pro	Lys	Val	Leu	Ala	Glu	Trp	Val
	1360	1				1355	-				1350	-			5	1345
			•													
4128	ccg	gcc	gat	ctg	cct	tca	cct	gta	gcc	ata	cgc	gcc	cca	cct	atc	ctg
	Pro	Ala	Asp	Leu	Pro	Ser	Pro	Val	Ala	Ile	Arg	Ala	Pro	Pro	Ile	Leu
		1375	:				L370					1365	-			
4176	cga	gcc	ata	ctg	cag	gag	cga	tat	cag	gac	gtg	ttt	cac	ctg	ttg	cag
	Arg	Ala	Ile	Leu	Gln	Glu	Arg	Tyr	Gln	Asp	Val	Phe	His	Leu	Leu	Gln
			1390	:				1385	:				1380	;		
4224	ctg	gtg	cag	gga	cat	ctg	aaa	gac	ttg	gtc	gtt	gag	gtg	tcg	aca	gtg
	Leu	Val	Gln	Gly	His	Leu	Lys	Asp	Leu	Val	Val	Glu	Val	Ser	Thr	Val
				1405					1400	:				1395	:	
4272	agc	ccc	agg	acg	aac	gag	gct	ctg	gtg	agg	gag	tac	cag	gag	cag	agc
		Pro														
			_		1/20					1/15		-			1 / 1 0	

cag atg cgg aag ctg ttc agc ttg agc cag tcc tgg gac cgg aag tgc Gln Met Arg Lys Leu Phe Ser Leu Ser Gln Ser Trp Asp Arg Lys Cys 1435 1440 1425 1430 aaa gat gga ctc tac caa gcc ctg aag gag acc cat cct cac ctc att 4368 Lys Asp Gly Leu Tyr Gln Ala Leu Lys Glu Thr His Pro His Leu Ile 1445 1450 1455 atg gaa ctc tgg gag aag ggc agc aaa aag gga ctc ctg cca ctc agc 4416 Met Glu Leu Trp Glu Lys Gly Ser Lys Lys Gly Leu Leu Pro Leu Ser 1470 1460 1465 4422 agc tga Ser <210> 2 <211> 1473 <212> PRT <213> Homo sapiens <400> 2 Met Ala Gly Gly Ala Trp Gly Arg Leu Ala Cys Tyr Leu Glu Phe Leu 5 10 15 1 Lys Lys Glu Glu Leu Lys Glu Phe Gln Leu Leu Ala Asn Lys Ala 20 25 30

His Ser Arg Ser Ser Ser Gly Glu Thr Pro Ala Gln Pro Glu Lys Thr

35 40 45

Ser Gly Met Glu Val Ala Ser Tyr Leu Val Ala Gln Tyr Gly Glu Gln
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Arg Ala Trp Asp Leu Ala Leu His Thr Trp Glu Gln Met Gly Leu Arg
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Ser Leu Cys Ala Gln Ala Gln Glu Gly Ala Gly His Ser Pro Ser Phe

85 90 95

Pro Tyr Ser Pro Ser Glu Pro His Leu Gly Ser Pro Ser Gln Pro Thr

100 105 110

Ser Thr Ala Val Leu Met Pro Trp Ile His Glu Leu Pro Ala Gly Cys
115 120 125

Thr Gln Gly Ser Glu Arg Arg Val Leu Arg Gln Leu Pro Asp Thr Ser

130 135 140

Gly Arg Arg Trp Arg Glu Ile Ser Ala Ser Leu Leu Tyr Gln Ala Leu
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Pro Ser Ser Pro Asp His Glu Ser Pro Ser Gln Glu Ser Pro Asn Ala 165 170 175

Pro Thr Ser Thr Ala Val Leu Gly Ser Trp Gly Ser Pro Pro Gln Pro
180 185 190

Ser Leu Ala Pro Arg Glu Glu Glu Ala Pro Gly Thr Gln Trp Pro Leu Asp Glu Thr Ser Gly Ile Tyr Tyr Thr Glu Ile Arg Glu Arg Glu Arg Glu Lys Ser Glu Lys Gly Arg Pro Pro Trp Ala Ala Val Val Gly Thr Pro Pro Gln Ala His Thr Ser Leu Gln Pro His His Pro Trp Glu Pro Ser Val Arg Glu Ser Leu Cys Ser Thr Trp Pro Trp Lys Asn Glu Asp Phe Asn Gln Lys Phe Thr Gln Leu Leu Leu Gln Arg Pro His Pro Arg Ser Gln Asp Pro Leu Val Lys Arg Ser Trp Pro Asp Tyr Val Glu Glu Asn Arg Gly His Leu Ile Glu Ile Arg Asp Leu Phe Gly Pro

Gly Ile Gly Lys Ser Thr Leu Ala Arg Gln Val Lys Glu Ala Trp Gly

Gly Leu Asp Thr Gln Glu Pro Arg Ile Val Ile Leu Gln Gly Ala Ala

340 345 350

Arg Gly Gln Leu Tyr Gly Asp Arg Phe Gln His Val Phe Tyr Phe Ser
355 360 365

Cys Arg Glu Leu Ala Gln Ser Lys Val Val Ser Leu Ala Glu Leu Ile 370 375 380

Gly Lys Asp Gly Thr Ala Thr Pro Ala Pro Ile Arg Gln Ile Leu Ser 385 390 395 400

Arg Pro Glu Arg Leu Leu Phe Ile Leu Asp Gly Val Asp Glu Pro Gly
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Trp Val Leu Gln Glu Pro Ser Ser Glu Leu Cys Leu His Trp Ser Gln
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Pro Gln Pro Ala Asp Ala Leu Leu Gly Ser Leu Leu Gly Lys Thr Ile
435 440 445

Leu Pro Glu Ala Ser Phe Leu Ile Thr Ala Arg Thr Thr Ala Leu Gln
450 455 460

Asn Leu Ile Pro Ser Leu Glu Gln Ala Arg Trp Val Glu Val Leu Gly
465 470 475 480

Phe Ser Glu Ser Ser Arg Lys Glu Tyr Phe Tyr Arg Tyr Phe Thr Asp
485 490 495

Glu Arg Gln Ala Ile Arg Ala Phe Arg Leu Val Lys Ser Asn Lys Glu
500 505 510

Leu Trp Ala Leu Cys Leu Val Pro Trp Val Ser Trp Leu Ala Cys Thr
515 520 525

Cys Leu Met Gln Gln Met Lys Arg Lys Glu Lys Leu Thr Leu Thr Ser
530 540

Lys Thr Thr Thr Thr Leu Cys Leu His Tyr Leu Ala Gln Ala Leu Gln 545 550 555 560

Ala Gln Pro Leu Gly Pro Gln Leu Arg Asp Leu Cys Ser Leu Ala Ala
565 570 575

Glu Gly Ile Trp Gln Lys Lys Thr Leu Phe Ser Pro Asp Asp Leu Arg
580 585 590

Lys His Gly Leu Asp Gly Ala Ile Ile Ser Thr Phe Leu Lys Met Gly
595 600 605

Ile Leu Gln Glu His Pro Ile Pro Leu Ser Tyr Ser Phe Ile His Leu 610 620

Cys Phe Gln Glu Phe Phe Ala Ala Met Ser Tyr Val Leu Glu Asp Glu
625 630 635 640

Lys Gly Arg Gly Lys His Ser Asn Cys Ile Ile Asp Leu Glu Lys Thr

645 650 655

Leu Glu Ala Tyr Gly Ile His Gly Leu Phe Gly Ala Ser Thr Thr Arg
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Phe Leu Leu Gly Leu Leu Ser Asp Glu Gly Glu Arg Glu Met Glu Asn 675 680 685

Ile Phe His Cys Arg Leu Ser Gln Gly Arg Asn Leu Met Gln Trp Val
690 695 700

Pro Ser Leu Gln Leu Leu Leu Gln Pro His Ser Leu Glu Ser Leu His
705 710 715 720

Cys Leu Tyr Glu Thr Arg Asn Lys Thr Phe Leu Thr Gln Val Met Ala
725 730 735

His Phe Glu Glu Met Gly Met Cys Val Glu Thr Asp Met Glu Leu Leu 740 745 750

Val Cys Thr Phe Cys Ile Lys Phe Ser Arg His Val Lys Lys Leu Gln
755 760 765

Leu Ile Glu Gly Arg Gln His Arg Ser Thr Trp Ser Pro Thr Met Val
770 780

Val Leu Phe Arg Trp Val Pro Val Thr Asp Ala Tyr Trp Gln Ile Leu 785 790 795 800 Phe Ser Val Leu Lys Val Thr Arg Asn Leu Lys Glu Leu Asp Leu Ser Gly Asn Ser Leu Ser His Ser Ala Val Lys Ser Leu Cys Lys Thr Leu Arg Arg Pro Arg Cys Leu Leu Glu Thr Leu Arg Leu Ala Gly Cys Gly Leu Thr Ala Glu Asp Cys Lys Asp Leu Ala Phe Gly Leu Arg Ala Asn Gln Thr Leu Thr Glu Leu Asp Leu Ser Phe Asn Val Leu Thr Asp Ala Gly Ala Lys His Leu Cys Gln Arg Leu Arg Gln Pro Ser Cys Lys Leu Gln Arg Leu Gln Leu Val Ser Cys Gly Leu Thr Ser Asp Cys Cys Gln Asp Leu Ala Ser Val Leu Ser Ala Ser Pro Ser Leu Lys Glu Leu Asp

Leu Gln Gln Asn Asn Leu Asp Asp Val Gly Val Arg Leu Leu Cys Glu 930 935 940

Gly Leu Arg His Pro Ala Cys Lys Leu Ile Arg Leu Gly Leu Asp Gln

955

950

Thr Thr Leu Ser Asp Glu Met Arg Gln Glu Leu Arg Ala Leu Glu Gln
965 970 975

Glu Lys Pro Gln Leu Leu Ile Phe Ser Arg Arg Lys Pro Ser Val Met
980 985 990

Thr Pro Thr Glu Gly Leu Asp Thr Gly Glu Met Ser Asn Ser Thr Ser
995 1000 1005

Ser Leu Lys Arg Gln Arg Leu Gly Ser Glu Arg Ala Ala Ser His Val

Ala Gln Ala Asn Leu Lys Leu Leu Asp Val Ser Lys Ile Phe Pro Ile 1025 1030 1035 1040

Ala Glu Ile Ala Glu Glu Ser Ser Pro Glu Val Val Pro Val Glu Leu
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Leu Cys Val Pro Ser Pro Ala Ser Gln Gly Asp Leu His Thr Lys Pro

1060 1065 1070

Leu Gly Thr Asp Asp Phe Trp Gly Pro Thr Gly Pro Val Ala Thr

1075 1080 1085

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1090 1095 1100

Ala Gly Ser Tyr Arg Trp Pro Asn Thr Gly Leu Cys Phe Val Met Arg

1105 1110 1115 1120

Glu Ala Val Thr Val Glu Ile Glu Phe Cys Val Trp Asp Gln Phe Leu
1125 1130 1135

Gly Glu Ile Asn Pro Gln His Ser Trp Met Val Ala Gly Pro Leu Leu 1140 1145 1150

Asp Ile Lys Ala Glu Pro Gly Ala Val Glu Ala Val His Leu Pro His
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Phe Val Ala Leu Gln Gly Gly His Val Asp Thr Ser Leu Phe Gln Met 1170 1175 1180

Ala His Phe Lys Glu Glu Gly Met Leu Leu Glu Lys Pro Ala Arg Val

1185 1190 1195 1200

Glu Leu His His Ile Val Leu Glu Asn Pro Ser Phe Ser Pro Leu Gly
1205 1210 1215

Val Leu Leu Lys Met Ile His Asn Ala Leu Arg Phe Ile Pro Val Thr
1220 1225 1230

Ser Val Val Leu Leu Tyr His Arg Val His Pro Glu Glu Val Thr Phe
1235 1240 1245

His Leu Tyr Leu Ile Pro Ser Asp Cys Ser Ile Arg Lys Ala Ile Asp

1250 1255 1260

Asp Leu Glu Met Lys Phe Gln Phe Val Arg Ile His Lys Pro Pro Pro 1265 1270 1275 1280

Leu Thr Pro Leu Tyr Met Gly Cys Arg Tyr Thr Val Ser Gly Ser Gly

1285 1290 1295

Ser Gly Met Leu Glu Ile Leu Pro Lys Glu Leu Glu Leu Cys Tyr Arg 1300 1305 1310

Ser Pro Gly Glu Asp Gln Leu Phe Ser Glu Phe Tyr Val Gly His Leu 1315 1320 1325

Gly Ser Gly Ile Arg Leu Gln Val Lys Asp Lys Lys Asp Glu Thr Leu 1330 1335 1340

Val Trp Glu Ala Leu Val Lys Pro Gly Asp Leu Met Pro Ala Thr Thr

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Leu Ile Pro Pro Ala Arg Ile Ala Val Pro Ser Pro Leu Asp Ala Pro
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Gln Leu Leu His Phe Val Asp Gln Tyr Arg Glu Gln Leu Ile Ala Arg 1380 1385 1390

Val Thr Ser Val Glu Val Val Leu Asp Lys Leu His Gly Gln Val Leu
1395 1400 1405

Ser Gln Glu Gln Tyr Glu Arg Val Leu Ala Glu Asn Thr Arg Pro Ser 1410 1415 1420

Gln Met Arg Lys Leu Phe Ser Leu Ser Gln Ser Trp Asp Arg Lys Cys

1425 1430 1435 1440

Lys Asp Gly Leu Tyr Gln Ala Leu Lys Glu Thr His Pro His Leu Ile

1445 1450 1455

Met Glu Leu Trp Glu Lys Gly Ser Lys Lys Gly Leu Leu Pro Leu Ser 1460 1465 1470

Ser

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Lys	Lys	Glu	Glu	Leu	Lys	Glu	Phe	Gln	Leu	Leu	Leu	Ala	Asn	Lys	Ala	
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His	Ser	Arg	Ser	Ser	Ser	Gly	Glu	Thr	Pro	Ala	Gln	Pro	Glu	Lys	Thr	
		35					40					45				
agt	ggc	atg	gag	gtg	gcc	tcg	tac	ctg	gtg	gct	cag	tat	ggg	gag	cag	192
Ser	Gly	Met	Glu	Val	Ala	Ser	Tyr	Leu	Val	Ala	Gln	Tyr	Gly	Glu	Gln	
	50					55					60					
cgg	gcc	tgg	gac	cta	gcc	ctc	cat	acc	tgg	gag	cag	atg	ggg	ctg	agg	240
Arg	Ala	Trp	Asp	Leu	Ala	Leu	His	Thr	Trp	Glu	Gln	Met	Gly	Leu	Arg	
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Ser	Leu	Cys	Ala	Gln	Ala	Gln	Glu	Gly	Ala	Gly	His	Ser	Pro	Ser	Phe	
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ccc	tac	agc	cca	agt	gaa	ccc	cac	ctg	ggg	tct	ccc	agc	caa	ccc	acc	336
Pro	Tyr	Ser	Pro	Ser	Glu	Pro	His	Leu	Gly	Ser	Pro	Ser	Gln	Pro	Thr	
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Ser	Thr	Ala	Val	Leu	Met	Pro	Trp	Ile	His	Glu	Leu	Pro	Ala	Gly	Cys	
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Thr	Gln	Gly	Ser	Glu	Arg	Arg	Val	Leu	Arg	Gln	Leu	Pro	Asp	Thr	Ser	
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Gly	Arg	Arg	Trp	Arg	Glu	Ile	Ser	Ala	Ser	Leu	Leu	Tyr	Gln	Ala	Leu	
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сса	agc	tcc	cca	gac	cat	gag	tct	сса	agc	cag	gag	tca	ccc	aac	gcc	528
Pro	Ser	Ser	Pro	Asp	His	Glu	Ser	Pro	Ser	Gln	Glu	Ser	Pro	Asn	Ala	
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ccc	aca	tcc	aca	gca	gtg	ctg	ggg	agc	tgg	gga	tcc	cca	cct	cag	ccc	576
Pro	Thr	Ser	Thr	Ala	Val	Leu	Gly	Ser	Trp	Gly	Ser	Pro	Pro	Gln	Pro	
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agc	cta	gca	ccc	aga	gag	cag	gag	gct	cct	ggg	acc	caa	tgg	cct	ctg	624
Ser	Leu	Ala	Pro	Arg	Glu	Gln	Glu	Ala	Pro	Gly	Thr	Gln	Trp	Pro	Leu	
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Asp	Glu	Thr	Ser	Gly	Ile	Tyr	Tyr	Thr	Glu	Ile	Arg	Glu	Arg	Glu	Arg	
	210					215					220					
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Glu	Lys	Ser	Glu	Lys	Gly	Arg	Pro	Pro	Trp	Ala	Ala	Val	Val	Gly	Thr	
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acc cag ggc tca gag aga agg gtt ttg aga cag ctg cct gac aca tct 432

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Pro	Pro	Gln	Ala	His	Thr	Ser	Leu	Gln	Pro	His	His	His	Pro	Trp	Glu	
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cct	tct	gtg	aga	gag	agc	ctc	tgt	tcc	aca	tgg	ccc	tgg	aaa	aat	gag	816
Pro	Ser	Val	Arg	Glu	Ser	Leu	Cys	Ser	Thr	Trp	Pro	Trp	Lys	Asn	Glu	
			260					265					270			
gat	ttt	aac	caa	aaa	ttc	aca	cag	ctg	cta	ctt	cta	caa	aga	cct	cac	864
Asp	Phe	Asn	Gln	Lys	Phe	Thr	Gln	Leu	Leu	Leu	Leu	Gln	Arg	Pro	His	
		275					280					285				
				`												
ccc	aga	agc	caa	gat	ccc	ctg	gtc	aag	aga	agc	tgg	cct	gat	tat	gtg	912
Pro	Arg	Ser	Gln	Asp	Pro	Leu	Val	Lys	Arg	Ser	Trp	Pro	Asp	Tyr	Val	
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Glu	Glu	Asn	Arg	Gly	His	Leu	Ile	Glu	Ile	Arg	Asp	Leu	Phe	Gly	Pro	
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Gly	Leu	Asp	Thr	Gln	Glu	Pro	Arg	Ile	Val	Ile	Leu	Gln	Gly	Ala	Ala	
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aga	ggc	cag	ctg	tat	ggg	gac	cgc	ttc	cag	cat	gtc	ttc	tac	ttc	agc	1104
Arg	Gly	Gln	Leu	Tyr	Gly	Asp	Arg	Phe	Gln	His	Val	Phe	Tyr	Phe	Ser	
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Cys	Arg	Glu	Leu	Ala	Gln	Ser	Lys	Val	Val	Ser	Leu	Ala	Glu	Leu	Ile	
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Gly	Lys	Asp	Gly	Thr	Ala	Thr	Pro	Ala	Pro	Ile	Arg	Gln	Ile	Leu	Ser	
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Arg	Pro	Glu	Arg	Leu	Leu	Phe	Ile	Leu	Asp	Gly	Val	Asp	Glu	Pro	Gly	
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Trp	Val	Leu	Gln	Glu	Pro	Ser	Ser	Glu	Leu	Cys	Leu	His	Trp	Ser	Gln	
			420					425					430			
cca	cag	ccg	gcg	gat	gca	ctg	ctg	ggc	agt	ttg	ctg	ggg	aaa	act	ata	1344
Pro	Gln	Pro	Ala	Asp	Ala	Leu	Leu	Gly	Ser	Leu	Leu	Gly	Lys	Thr	Ile	
		435					440					445				
ctt	ccc	gag	gca	tcc	ttc	ctg	atc	acg	gct	cgg	acc	aca	gct	ctg	cag	,1392
Leu	Pro	Glu	Ala	Ser	Phe	Leu	Ile	Thr	Ala	Arg	Thr	Thr	Ala	Leu	Gln	
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Asn	Leu	Ile	Pro	Ser	Leu	Glu	Gln	Ala	Arg	Trp	Val	Glu	Val	Leu	Gly	
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Phe	Ser	Glu	Ser	Ser	Arg	Lys	Glu	Tyr	Phe	Tyr	Arg	Tyr	Phe	Thr	Asp	
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gaa	agg	caa	gca	att	aga	gcc	ttt	agg	ttg	gtc	aaa	tca	aac	aaa	gag	1536
Glu	Arg	Gln	Ala	Ile	Arg	Ala	Phe	Arg	Leu	Val	Lys	Ser	Asn	Lys	Glu	
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Leu	Trp	Ala	Leu	Cys	Leu	Val	Pro	Trp	Val	Ser	Trp	Leu	Ala	Cys	Thr	
		515					520					525				
tgc	ctg	atg	cag	cag	atg	aag	cgg	aag	gaa	aaa	ctc	aca	ctg	act	tcc	1632
Cys	Leu	Met	Gln	Gln	Met	Lys	Arg	Lys	Glu	Lys	Leu	Thr	Leu	Thr	Ser	
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Lys	Thr	Thr	Thr	Thr	Leu	Cys	Leu	His	Tyr	Leu	Ala	Gln	Ala	Leu	Gln	
545					550					555					560	
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Ala	Gln	Pro	Leu	Gly	Pro	Gln	Leu	Arg		Leu	Cys	Ser	Leu		Ala	
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Lys	His	Gly	Leu	Asp	Gly	Ala	Ile	Ile	Ser	Thr	Phe	Leu	Lys	Met	Gly	
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Ile	Leu	Gln	Glu	His	Pro	Ile	Pro	Leu	Ser	Tyr	Ser	Phe	Ile	His	Leu	
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Cys	Phe	Gln	Glu	Phe	Phe	Ala	Ala	Met	Ser	Tyr	Val	Leu	Glu	Asp	Glu	
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Lys	Gly	Arg	Gly	Lys	His	Ser	Asn	Cys	Ile	Ile	Asp	Leu	Glu	Lys	Thr	
				645					650					655		
cta	gaa	gca	tat	gga	ata	cat	ggc	ctg	ttt	ggg	gca	tca	acc	aca	cgt	2016
Leu	Glu	Ala	Tyr	Gly	Ile	His	Gly	Leu	Phe	Gly	Ala	Ser	Thr	Thr	Arg	
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Phe	Leu	Leu	Gly	Leu	Leu	Ser	Asp	Glu	Gly	Glu	Arg	Glu	Met	Glu	Asn	
		675	_				680		_		_	685				
atc	ttt	cac	tac	caa	cta	tct	caa	gga	aaa	aac	cta	ato	cag	taa	atc	2112
			- , •	- 33	5		_				_		5	- 27	5	
Tle	Phe	His	CVS	Ara	T.e.11	Ser	Gln	Glv	Ara	Asn	Len	Met	Gln	Trn	Val	

690 695 700

ccg tcc ctg	cag ctg ctg	ctg cag cca	cac tct ctg (gag tee ete eae 2160
Pro Ser Leu	Gln Leu Leu	Leu Gln Pro	His Ser Leu (Glu Ser Leu His
705	710		715	720
tgc ttg tac	gag act cgg	aac aaa acg	ttc ctg aca	caa gtg atg gcc 2208
Cys Leu Tyr	Glu Thr Arg	Asn Lys Thr	Phe Leu Thr	Gln Val Met Ala
	725		730	735
cat ttc gaa	gaa atg ggc	atg tgt gta	gaa aca gac	atg gag ctc tta 2256
His Phe Glu	Glu Met Gly	Met Cys Val	Glu Thr Asp I	Met Glu Leu Leu
	740	745		750
gtg tgc act	ttc tgc att	aaa ttc agc	cgc cac gtg	aag aag ctt cag 2304
Val Cys Thr	Phe Cys Ile	Lys Phe Ser	Arg His Val	Lys Lys Leu Gln
755		760		765
ctg att gag	ggc agg cag	cac aga tca	aca tgg agc	ccc acc atg gta 2352
Leu Ile Glu	Gly Arg Gln	His Arg Ser	Thr Trp Ser	Pro Thr Met Val
770		775	780	
gtc ctg ttc	agg tgg gtc	cca gtc aca	gat gcc tat	tgg cag att ctc 2400
Val Leu Phe	Arg Trp Val	Pro Val Thr	Asp Ala Tyr	Trp Gln Ile Leu
785	790		795	800
ttc tcc gtc	ctc aag gtc	acc aga aac	ctg aag gag	ctg gac cta agt 2448
Phe Ser Val	Leu Lys Val	Thr Arg Asn	Leu Lys Glu	Leu Asp Leu Ser

805 810 815

gga aac tcg	ctg agc cac	tct gca gtg	aag agt ctt	tgt aag acc	ctg 2496
Gly Asn Ser	Leu Ser His	Ser Ala Val	Lys Ser Leu	Cys Lys Thr	Leu
	820	825		830	
aga cgc cct	cgc tgc ctc	ctg gag acc	ctg cgg ttg	gct ggc tgt	ggc 2544
Arg Arg Pro	Arg Cys Leu	Leu Glu Thr	Leu Arg Leu	Ala Gly Cys	Gly
835		840		845	
ctc aca gct	gag gac tgc	aag gac ctt	gcc ttt ągg	ctg aga gcc	aac 2592
Leu Thr Ala	Glu Asp Cys	Lys Asp Leu	Ala Phe Gly	Leu Arg Ala	Asn
850		855	860		
cag acc ctg	acc gag ctg	gac ctg ago	ttc aat gtg	ctc acg gat	gct 2640
Gln Thr Leu	Thr Glu Leu	Asp Leu Ser	Phe Asn Val	Leu Thr Asp	Ala
865	870		875		880
gga gcc aaa	cac ctt tgc	cag aga ctg	aga cag ccg	agc tgc aag	cta 2688
Gly Ala Lys	His Leu Cys	Gln Arg Leu	Arg Gln Pro	Ser Cys Lys	Leu
	885		890	895	
cag cga ctg	cag ctg gtc	agc tgt ggc	ctc acg tct	gac tgc tgc	cag 2736
Gln Arg Leu	Gln Leu Val	Ser Cys Gly	Leu Thr Ser	Asp Cys Cys	Gln
	900	905		910	
gac ctg gcc	tct gtg ctt	agt gcc agc	ccc age ctg	aag gag cta	gac 2784
Asp Leu Ala	Ser Val Leu	Ser Ala Ser	Pro Ser Leu	Lys Glu Leu	Asp
915	,	920		925	

ctg	cag	cag	aac	aac	ctg	gat	gac	gtt	ggc	gtg	cga	ctg	ctc	tgt	gag	2832
Leu	Gln	Gln	Asn	Asn	Leu	Asp	Asp	Val	Gly	Val	Arg	Leu	Leu	Cys	Glu	
	930					935					940					
ggg	ctc	agg	cat	cct	gcc	tgc	aaa	ctc	ata	cgc	ctg	ggg	aaa	сса	agt	2880
Gly	Leu	Arg	His	Pro	Ala	Cys	Lys	Leu	Ile	Arg	Leu	Gly	Lys	Pro	Ser	
945					950					955					960	
gtg	atg	acc	cct	act	gag	ggc	ctg	gat	acg	gga	gag	atg	agt	aat	agc	2928
Val	Met	Thr	Pro	Thr	Glu	Gly	Leu	Asp	Thr	Gly	Glu	Met	Ser	Asn	Ser	
				965					970					975		
aca	tcc	tca	ctc	aag	cgg	cag	aga	ctc	gga	tca	gag	agg	gcg	gct	tcc	2976
Thr	Ser	Ser	Leu	Lys	Arg	Gln	Arg	Leu	Gly	Ser	Glu	Arg	Ala	Ala	Ser	
			980					985					990			
cat	gtt	gct	cag	gct	aat	ctc	aaa	ctc	ctg	gac	gtg	agc	aag	atc	ttc	3024
His	Val	Ala	Gln	Ala	Asn	Leu	Lys	Leu	Leu	Asp	Val	Ser	Lys	Ile	Phe	
		995					1000					1005				
сса	att	gct	gag	att	gca	gag	gaa	agc	tcc	cca	gag	gta	gta	ccg	gtg	3072
Pro	Ile	Ala	Glu	Ile	Ala	Glu	Glu	Ser	Ser	Pro	Glu	Val	Val	Pro	Val	
	1010					1015					1020					
gaa	ctc	ttg	tgc	gtg	cct	tct	cct	gcc	tct	caa	ggg	gac	ctg	cat	acg	3120
Glu	Leu	Leu	Cys	Val	Pro	Ser	Pro	Ala	Ser	Gln	Gly	Asp	Leu	His	Thr	
102	5				1030					1035					1040	

aag	cct	ttg	ggg	act	gac	gat	gac	ttc	tgg	ggc	ccc	acg	ggg	cct	gtg	3168
Lys	Pro	Leu	Gly	Thr	Asp	Asp	Asp	Phe	Trp	Gly	Pro	Thr	Gly	Pro	Val	
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gct	act	gag	gta	gtt	gac	aaa	gaa	aag	aac	ttg	tac	cga	gtt	cac	ttc	3216
Ala	Thr	Glu	Val	Val	Asp	Lys	Glu	Lys	Asn	Leu	Tyr	Arg	Val	His	Phe	
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cct	gta	gct	ggc	tcc	tac	cgc	tgg	ccc	aac	acg	ggt	ctc	tgc	ttt	gtg	3264
Pro	Val	Ala	Gly	Ser	Tyr	Arg	Trp	Pro	Asn	Thr	Gly	Leu	Cys	Phe	Val	
		1075				1	1080				-	1085				
atg	aga	gaa	gcg	gtg	acc	gtt	gag	att	gaa	ttc	tgt	gtg	tgg	gac	cag	3312
Met	Arg	Glu	Ala	Val	Thr	Val	Glu	Ile	Glu	Phe	Cys	Val	Trp	Asp	Gln	
1	L090					1095					1100					
ttc	ctg	ggt	gag	atc	aac	cca	cag	cac	agc	tgg	atg	gtg	gca	ggg	cct	3360
Phe	Leu	Gly	Glu	Ile	Asn	Pro	Gln	His	Ser	Trp	Met	Val	Ala	Gly	Pro	
1105	5				1110				:	1115				-	1120	
ctg	ctg	gac	atc	aag	gct	gag	cct	gga	gct	gtg	gaa	gct	gtg	cac	ctc	3408
Leu	Leu	Asp	Ile	Lys	Ala	Glu	Pro	Gly	Ala	Val	Glu	Ala	Val	His	Leu	
			:	1125				:	1130					1135		
cct	cac	ttt	gtg	gct	ctc	caa	ggg	ggc	cat	gtg	gac	aca	tcc	ctg	ttc	3456
Pro	His	Phe	Val	Ala	Leu	Gln	Gly	Gly	His	Val	Asp	Thr	Ser	Leu	Phe	
			1140					1115					1150			

caa atg gcc cac tt	t aaa gag gag	ggg atg ctc c	tg gag aag cca gcc	3504
Gln Met Ala His Ph	e Lys Glu Glu	Gly Met Leu Le	eu Glu Lys Pro Ala	
1155	1160		1165	
agg gtg gag ctg ca	t cac ata gtt	ctg gaa aac co	ce age tte tee eee	3552
Arg Val Glu Leu Hi	s His Ile Val	Leu Glu Asn P	ro Ser Phe Ser Pro	
1170	1175	118	30	
ttg gga gtc ctc ct	g aaa atg atc	cat aat gcc c	tg cgc ttc att ccc	3600
Leu Gly Val Leu Le	u Lys Met Ile	His Asn Ala L	eu Arg Phe Ile Pro	
1185	1190	1195	1200	
gtc acc tct gtg gt	g ttg ctt tac	cac cgc gtc c	at cct gag gaa gtc	3648
Val Thr Ser Val Va	l Leu Leu Tyr	His Arg Val H	is Pro Glu Glu Val	
120	5	1210	1215	
acc ttc cac ctc ta	c ctg atc cca	agt gac tgc t	cc att cgg aag gaa	3696
Thr Phe His Leu Ty	r Leu Ile Pro	Ser Asp Cys S	er Ile Arg Lys Glu	
1220		1225	1230	
ctg gag ctc tgc ta	t cga agc cct	gga gaa gac c	ag ctg ttc tcg gag	3744
Leu Glu Leu Cys Ty	r Arg Ser Pro	Gly Glu Asp G	ln Leu Phe Ser Glu	
1235	1240		1245	
ttc tac gtt ggc ca	c ttg gga tca	. ggg atc agg c	tg caa gtg aaa gac	3792
-			tg caa gtg aaa gac eu Gln Val Lys Asp	3792

aag aaa gat gag	act ctg gtg	tgg gag gcc tt	tg gtg aaa cca gga gat 3840
Lys Lys Asp Glu	Thr Leu Val	Trp Glu Ala Le	eu Val Lys Pro Gly Asp
1265	1270	127	75 1280
ctc atg cct gca	act act ctg	atc cct cca go	cc cgc ata gcc gta cct 3888
Leu Met Pro Ala	Thr Thr Leu	Ile Pro Pro Al	la Arg Ile Ala Val Pro
	1285	1290	1295
tca cct ctg gat	gcc ccg cag	ttg ctg cac tt	tt gtg gac cag tat cga 3936
Ser Pro Leu Asp	Ala Pro Gln	Leu Leu His Ph	he Val Asp Gln Tyr Arg
1300		1305	1310
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Glu Gln Leu Ile	Ala Arg Val	Thr Ser Val G	lu Val Val Leu Asp Lys
1315	1	.320	1325
ctg cat gga cag	gtg ctg agc		ac gag agg gtg ctg gct 4032
		cag gag cag ta	
		cag gag cag ta	ac gag agg gtg ctg gct 4032
Leu His Gly Gln	Val Leu Ser	cag gag cag ta	ac gag agg gtg ctg gct 4032 'yr Glu Arg Val Leu Ala
Leu His Gly Gln	Val Leu Ser 1335	cag gag cag ta Gln Glu Gln Ty	ac gag agg gtg ctg gct 4032 'yr Glu Arg Val Leu Ala
Leu His Gly Gln 1330 gag aac acg agg	Val Leu Ser 1335 ccc agc cag	cag gag cag ta Gln Glu Gln Ty atg cgg aag ct	ac gag agg gtg ctg gct 4032 Tyr Glu Arg Val Leu Ala
Leu His Gly Gln 1330 gag aac acg agg	Val Leu Ser 1335 ccc agc cag	cag gag cag ta Gln Glu Gln Ty atg cgg aag ct	ac gag agg gtg ctg gct 4032 Yyr Glu Arg Val Leu Ala 1340 Etg ttc agc ttg agc cag 4080 Eeu Phe Ser Leu Ser Gln
Leu His Gly Gln 1330 gag aac acg agg Glu Asn Thr Arg	Val Leu Ser 1335 ccc agc cag Pro Ser Gln	cag gag cag ta Gln Glu Gln Ty atg cgg aag ct Met Arg Lys Le	ac gag agg gtg ctg gct 4032 Yyr Glu Arg Val Leu Ala 1340 Etg ttc agc ttg agc cag 4080 Eeu Phe Ser Leu Ser Gln
Leu His Gly Gln 1330 gag aac acg agg Glu Asn Thr Arg 1345	Val Leu Ser 1335 ccc agc cag Pro Ser Gln 1350	cag gag cag ta Gln Glu Gln Ty atg cgg aag ct Met Arg Lys Le	ac gag agg gtg ctg gct 4032 Yyr Glu Arg Val Leu Ala 1340 Etg ttc agc ttg agc cag 4080 Eeu Phe Ser Leu Ser Gln
Leu His Gly Gln 1330 gag aac acg agg Glu Asn Thr Arg 1345 tcc tgg gac cgg	Val Leu Ser 1335 ccc agc cag Pro Ser Gln 1350 aag tgc aaa	cag gag cag ta Gln Glu Gln Ty atg cgg aag ct Met Arg Lys Le 135	ac gag agg gtg ctg gct 4032 Yr Glu Arg Val Leu Ala 1340 Etg ttc agc ttg agc cag 4080 Eeu Phe Ser Leu Ser Gln 1360
Leu His Gly Gln 1330 gag aac acg agg Glu Asn Thr Arg 1345 tcc tgg gac cgg Ser Trp Asp Arg	Val Leu Ser 1335 ccc agc cag Pro Ser Gln 1350 aag tgc aaa	cag gag cag ta Gln Glu Gln Ty atg cgg aag ct Met Arg Lys Le 135	ac gag agg gtg ctg gct 4032 Tyr Glu Arg Val Leu Ala 1340 Etg ttc agc ttg agc cag 4080 Eeu Phe Ser Leu Ser Gln 1360 Eac caa gcc ctg aag gag 4128

acc cat cct cac ctc att atg gaa ctc tgg gag aag ggc agc aaa aag 4176

Thr His Pro His Leu Ile Met Glu Leu Trp Glu Lys Gly Ser Lys Lys
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Gly Leu Leu Pro Leu Ser Ser

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His Ser Arg Ser Ser Ser Gly Glu Thr Pro Ala Gln Pro Glu Lys Thr
35 40 45

Ser Gly Met Glu Val Ala Ser Tyr Leu Val Ala Gln Tyr Gly Glu Gln
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Arg Ala Trp Asp Leu Ala Leu His Thr Trp Glu Gln Met Gly Leu Arg
65 70 75 80

Ser Leu Cys Ala Gln Ala Gln Glu Gly Ala Gly His Ser Pro Ser Phe Pro Tyr Ser Pro Ser Glu Pro His Leu Gly Ser Pro Ser Gln Pro Thr Ser Thr Ala Val Leu Met Pro Trp Ile His Glu Leu Pro Ala Gly Cys Thr Gln Gly Ser Glu Arg Arg Val Leu Arg Gln Leu Pro Asp Thr Ser Gly Arg Arg Trp Arg Glu Ile Ser Ala Ser Leu Leu Tyr Gln Ala Leu Pro Ser Ser Pro Asp His Glu Ser Pro Ser Gln Glu Ser Pro Asn Ala

Pro Thr Ser Thr Ala Val Leu Gly Ser Trp Gly Ser Pro Pro Gln Pro

Ser Leu Ala Pro Arg Glu Gln Glu Ala Pro Gly Thr Gln Trp Pro Leu

Asp Glu Thr Ser Gly Ile Tyr Tyr Thr Glu Ile Arg Glu Arg Glu Arg

Glu Lys Ser Glu Lys Gly Arg Pro Pro Trp Ala Ala Val Val Gly Thr

225 230 235 240

Pro Pro Gln Ala His Thr Ser Leu Gln Pro His His His Pro Trp Glu
245 250 255

Pro Ser Val Arg Glu Ser Leu Cys Ser Thr Trp Pro Trp Lys Asn Glu
260 265 270

Asp Phe Asn Gln Lys Phe Thr Gln Leu Leu Leu Gln Arg Pro His
275 280 285

Pro Arg Ser Gln Asp Pro Leu Val Lys Arg Ser Trp Pro Asp Tyr Val
290 295 300

Glu Glu Asn Arg Gly His Leu Ile Glu Ile Arg Asp Leu Phe Gly Pro 305 310 315 320

Gly Leu Asp Thr Gln Glu Pro Arg Ile Val Ile Leu Gln Gly Ala Ala
325 330 335

Gly Ile Gly Lys Ser Thr Leu Ala Arg Gln Val Lys Glu Ala Trp Gly

340 345 350

Arg Gly Gln Leu Tyr Gly Asp Arg Phe Gln His Val Phe Tyr Phe Ser 355 360 365

Cys Arg Glu Leu Ala Gln Ser Lys Val Val Ser Leu Ala Glu Leu Ile 370 375 380 Gly Lys Asp Gly Thr Ala Thr Pro Ala Pro Ile Arg Gln Ile Leu Ser 385 390 395 400

Arg Pro Glu Arg Leu Leu Phe Ile Leu Asp Gly Val Asp Glu Pro Gly
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Trp Val Leu Gln Glu Pro Ser Ser Glu Leu Cys Leu His Trp Ser Gln
420 425 430

Pro Gln Pro Ala Asp Ala Leu Leu Gly Ser Leu Leu Gly Lys Thr Ile
435 440 445

Leu Pro Glu Ala Ser Phe Leu Ile Thr Ala Arg Thr Thr Ala Leu Gln
450 455 460

Asn Leu Ile Pro Ser Leu Glu Gln Ala Arg Trp Val Glu Val Leu Gly
465 470 475 480

Phe Ser Glu Ser Ser Arg Lys Glu Tyr Phe Tyr Arg Tyr Phe Thr Asp
485 490 495

Glu Arg Gln Ala Ile Arg Ala Phe Arg Leu Val Lys Ser Asn Lys Glu
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Leu Trp Ala Leu Cys Leu Val Pro Trp Val Ser Trp Leu Ala Cys Thr
515 520 525

Cys Leu Met Gln Gln Met Lys Arg Lys Glu Lys Leu Thr Leu Thr Ser

530 535 540

Lys Thr Thr Thr Thr Leu Cys Leu His Tyr Leu Ala Gln Ala Leu Gln 545 550 555 560

Ala Gln Pro Leu Gly Pro Gln Leu Arg Asp Leu Cys Ser Leu Ala Ala 565 570 575

Glu Gly Ile Trp Gln Lys Lys Thr Leu Phe Ser Pro Asp Asp Leu Arg
580 585 590

Lys His Gly Leu Asp Gly Ala Ile Ile Ser Thr Phe Leu Lys Met Gly
595 600 605

Ile Leu Gln Glu His Pro Ile Pro Leu Ser Tyr Ser Phe Ile His Leu
610 615 620

Cys Phe Gln Glu Phe Phe Ala Ala Met Ser Tyr Val Leu Glu Asp Glu 625 630 635 640

Lys Gly Arg Gly Lys His Ser Asn Cys Ile Ile Asp Leu Glu Lys Thr
645 650 655

Leu Glu Ala Tyr Gly Ile His Gly Leu Phe Gly Ala Ser Thr Thr Arg
660 665 670

Phe Leu Gly Leu Leu Ser Asp Glu Gly Glu Arg Glu Met Glu Asn
675 680 685

Ile Phe His Cys Arg Leu Ser Gln Gly Arg Asn Leu Met Gln Trp Val
690 695 700

Pro Ser Leu Cln Leu Leu Leu Gln Pro His Ser Leu Glu Ser Leu His

Pro Ser Leu Gln Leu Leu Leu Gln Pro His Ser Leu Glu Ser Leu His
705 710 715 720

Cys Leu Tyr Glu Thr Arg Asn Lys Thr Phe Leu Thr Gln Val Met Ala
725 730 735

His Phe Glu Glu Met Gly Met Cys Val Glu Thr Asp Met Glu Leu Leu
740 745 750

Val Cys Thr Phe Cys Ile Lys Phe Ser Arg His Val Lys Lys Leu Gln
755 760 765

Leu Ile Glu Gly Arg Gln His Arg Ser Thr Trp Ser Pro Thr Met Val
770 775 780

Val Leu Phe Arg Trp Val Pro Val Thr Asp Ala Tyr Trp Gln Ile Leu 785

Phe Ser Val Leu Lys Val Thr Arg Asn Leu Lys Glu Leu Asp Leu Ser 805 810 815

Gly Asn Ser Leu Ser His Ser Ala Val Lys Ser Leu Cys Lys Thr Leu 820 825 830

Arg Arg Pro Arg Cys Leu Leu Glu Thr Leu Arg Leu Ala Gly Cys Gly

835 840 845

Leu Thr Ala Glu Asp Cys Lys Asp Leu Ala Phe Gly Leu Arg Ala Asn 850 855 860

Gln Thr Leu Thr Glu Leu Asp Leu Ser Phe Asn Val Leu Thr Asp Ala 865 870 875 880

Gly Ala Lys His Leu Cys Gln Arg Leu Arg Gln Pro Ser Cys Lys Leu 885 890 895

Gln Arg Leu Gln Leu Val Ser Cys Gly Leu Thr Ser Asp Cys Cys Gln
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Asp Leu Ala Ser Val Leu Ser Ala Ser Pro Ser Leu Lys Glu Leu Asp
915 920 925

Leu Gln Gln Asn Asn Leu Asp Asp Val Gly Val Arg Leu Leu Cys Glu 930 935 940

Gly Leu Arg His Pro Ala Cys Lys Leu Ile Arg Leu Gly Lys Pro Ser 945 950 955 960

Val Met Thr Pro Thr Glu Gly Leu Asp Thr Gly Glu Met Ser Asn Ser 965 970 975

Thr Ser Ser Leu Lys Arg Gln Arg Leu Gly Ser Glu Arg Ala Ala Ser
980 985 990

His Val Ala Gln Ala Asn Leu Lys Leu Leu Asp Val Ser Lys Ile Phe
995 1000 1005

Pro Ile Ala Glu Ile Ala Glu Glu Ser Ser Pro Glu Val Val Pro Val
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Glu Leu Leu Cys Val Pro Ser Pro Ala Ser Gln Gly Asp Leu His Thr

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Lys Pro Leu Gly Thr Asp Asp Asp Phe Trp Gly Pro Thr Gly Pro Val

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Ala Thr Glu Val Val Asp Lys Glu Lys Asn Leu Tyr Arg Val His Phe
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Pro Val Ala Gly Ser Tyr Arg Trp Pro Asn Thr Gly Leu Cys Phe Val

Met Arg Glu Ala Val Thr Val Glu Ile Glu Phe Cys Val Trp Asp Gln
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Phe Leu Gly Glu Ile Asn Pro Gln His Ser Trp Met Val Ala Gly Pro 1105 1110 1115 1120

Leu Leu Asp Ile Lys Ala Glu Pro Gly Ala Val Glu Ala Val His Leu
1125 1130 1135

Pro His Phe Val Ala Leu Gln Gly Gly His Val Asp Thr Ser Leu Phe

1140 1145 1150

Gln Met Ala His Phe Lys Glu Glu Gly Met Leu Leu Glu Lys Pro Ala 1155 1160 1165

Arg Val Glu Leu His His Ile Val Leu Glu Asn Pro Ser Phe Ser Pro 1170 1175 1180

Leu Gly Val Leu Leu Lys Met Ile His Asn Ala Leu Arg Phe Ile Pro
1185 1190 1195 1200

Val Thr Ser Val Val Leu Leu Tyr His Arg Val His Pro Glu Glu Val
1205 1210 1215

Thr Phe His Leu Tyr Leu Ile Pro Ser Asp Cys Ser Ile Arg Lys Glu
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Leu Glu Leu Cys Tyr Arg Ser Pro Gly Glu Asp Gln Leu Phe Ser Glu
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Phe Tyr Val Gly His Leu Gly Ser Gly Ile Arg Leu Gln Val Lys Asp
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Lys Lys Asp Glu Thr Leu Val Trp Glu Ala Leu Val Lys Pro Gly Asp

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Leu Met Pro Ala Thr Thr Leu Ile Pro Pro Ala Arg Ile Ala Val Pro
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Ser Pro Leu Asp Ala Pro Gln Leu Leu His Phe Val Asp Gln Tyr Arg 1300 1305 1310

Glu Gln Leu Ile Ala Arg Val Thr Ser Val Glu Val Val Leu Asp Lys

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Leu His Gly Gln Val Leu Ser Gln Glu Gln Tyr Glu Arg Val Leu Ala 1330 1335 1340

Glu Asn Thr Arg Pro Ser Gln Met Arg Lys Leu Phe Ser Leu Ser Gln

1345 1350 1355 1360

Ser Trp Asp Arg Lys Cys Lys Asp Gly Leu Tyr Gln Ala Leu Lys Glu 1365 1370 1375

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Lys Lys Glu Glu Leu Lys Glu Phe Gln Leu Leu Leu Ala Asn Lys Ala
20 25 30

cac tcc agg agc tct tcg ggt gag aca ccc gct cag cca gag aag acg 144

His Ser Arg Ser Ser Ser Gly Glu Thr Pro Ala Gln Pro Glu Lys Thr

35 40 45

agt ggc atg gag gtg gcc tcg tac ctg gtg gct cag tat ggg gag cag 192

Ser Gly Met Glu Val Ala Ser Tyr Leu Val Ala Gln Tyr Gly Glu Gln

50 55 60

cgg gcc tgg gac cta gcc ctc cat acc tgg gag cag atg ggg ctg agg 240

Arg Ala Trp Asp Leu Ala Leu His Thr Trp Glu Gln Met Gly Leu Arg

65 70 75 80

tca ctg tgc gcc caa gcc cag gaa ggg gca ggc cac tct ccc tca ttc 288

Ser Leu Cys Ala Gln Ala Gln Glu Gly Ala Gly His Ser Pro Ser Phe

85 90 95

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		115					120					125				
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Thr	Gln	Gly	Ser	Glu	Arg	Arg	Val	Leu	Arg	Gln	Leu	Pro	Asp	Thr	Ser	
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gga	cgc	cgc	tgg	aga	gaa	atc	tct	gcc	tca	ctc	ctc	tac	caa	gct	ctt	480
Gly	Arg	Arg	Trp	Arg	Glu	Ile	Ser	Ala	Ser	Leu	Leu	Tyr	Gln	Ala	Leu	
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7.47					150					155					160	
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cca				Asp	cat				Ser	cag				Asn	gcc	528
cca Pro	Ser	Ser	Pro	Asp	cat His	Glu	Ser	Pro	Ser 170	cag Gln	Glu	Ser	Pro	Asn	gcc Ala	528 576
cca Pro	Ser	Ser	Pro	Asp 165 gca	cat His	Glu	Ser	Pro	Ser 170 tgg	cag Gln gga	Glu	Ser	Pro	Asn 175	gcc Ala	
cca Pro	Ser	Ser	Pro	Asp 165 gca	cat His	Glu	Ser	Pro	Ser 170 tgg	cag Gln gga	Glu	Ser	Pro	Asn 175 cag	gcc Ala	
cca Pro	Ser	Ser	Pro aca Thr	Asp 165 gca	cat His	Glu	Ser	Pro agc Ser	Ser 170 tgg	cag Gln gga	Glu	Ser	Pro cct Pro	Asn 175 cag	gcc Ala	
cca Pro ccc Pro	ser aca Thr	ser tcc ser	Pro aca Thr 180	Asp 165 gca Ala	cat His gtg Val	Glu ctg Leu	ggg Gly	Pro agc Ser 185	Ser 170 tgg Trp	cag Gln gga Gly	Glu tcc Ser	ser cca Pro	cct Pro	Asn 175 cag	gcc Ala ccc Pro	
cca Pro ccc Pro	ser aca Thr	tcc Ser gca	Pro aca Thr 180	Asp 165 gca Ala	cat His gtg Val	ctg Leu	ggg Gly gag	Pro agc Ser 185	Ser 170 tgg Trp	cag Gln gga Gly	Glu tcc Ser	cca Pro	cct Pro 190	Asn 175 cag Gln	gcc Ala ccc Pro	576
cca Pro ccc Pro	ser aca Thr	tcc Ser gca	Pro aca Thr 180	Asp 165 gca Ala	cat His gtg Val	ctg Leu	ggg Gly gag	Pro agc Ser 185	Ser 170 tgg Trp	cag Gln gga Gly	Glu tcc Ser	cca Pro	cct Pro 190	Asn 175 cag Gln	gcc Ala ccc Pro	576
cca Pro ccc Pro	ser aca Thr	tcc Ser gca Ala	Pro aca Thr 180	Asp 165 gca Ala	cat His gtg Val	ctg Leu	ggg Gly gag Glu	Pro agc Ser 185	Ser 170 tgg Trp	cag Gln gga Gly	Glu tcc Ser	cca Pro	cct Pro 190	Asn 175 cag Gln	gcc Ala ccc Pro	576

gat gaa acg tca gga att tac tac aca gaa atc aga gaa aga gag aga 672

Asp	Glu	Thr	Ser	Gly	Ile	Tyr	Tyr	Thr	Glu	Ile	Arg	Glu	Arg	Glu	Arg	
	210					215					220					
gag	aaa	tca	gag	aaa	ggc	agg	ccc	сса	tgg	gca	gcg	gtg	gta	gga	acg	720
Glu	Lys	Ser	Glu	Lys	Gly	Arg	Pro	Pro	Trp	Ala	Ala	Val	Val	Gly	Thr	
225					230					235					240	
ccc	cca	cag	gcg	cac	acc	agc	cta	cag	ccc	cac	cac	cac	cca	tgg	gag	768
Pro	Pro	Gln	Ala	His	Thr	Ser	Leu	Gln	Pro	His	His	His	Pro	Trp	Glu	
				245					250					255		
cct	tct	gtg	aga	gag	agc	ctc	tgt	tcc	aca	tgg	ccc	tgg	aaa	aat	gag	816
Pro	Ser	Val	Arg	Glu	Ser	Leu	Cys	Ser	Thr	Trp	Pro	Trp	Lys	Asn	Glu	
			260					265					270			
gat	ttt	aac	caa	aaa	ttc	aca	cag	ctg	cta	ctt	cta	caa	aga	cct	cac	864
Asp	Phe	Asn	Gln	Lys	Phe	Thr	Gln	Leu	Leu	Leu	Leu	Gln	Arg	Pro	His	
		275					280					285				
ccc	aga	agc	caa	gat	ccc	ctg	gtc	aag	aga	agc	tgg	cct	gat	tat	gtg	912
Pro	Arg	Ser	Gln	Asp	Pro	Leu	Val	Lys	Arg	Ser	Trp	Pro	Asp	Tyr	Val	
	290					295					300					
gag	gag	aat	cga	gga	cat	tta	att	gag	atc	aga	gac	tta	ttt	ggc	cca	960
Glu	Glu	Asn	Arg	Gly	His	Leu	Ile	Glu	Ile	Arg	Asp	Leu	Phe	Gly	Pro	
305					310					315					320	
ggc	ctg	gat	acc	caa	gaa	cct	cgc	ata	gtc	ata	ctg	cag	ggg	gct	gct	1008

Gly	Leu	Asp	Thr	Gln	Glu	Pro	Arg	Ile	Val	Ile	Leu	Gln	Gly	Ala	Ala	
				325					330					335		
gga	att	ggg	aag	tca	aca	ctg	gcc	agg	cag	gtg	aag	gaa	gcc	tgg	ggg	1056
Gly	Ile	Gly	Lys	Ser	Thr	Leu	Ala	Arg	Gln	Val	Lys	Glu	Ala	Trp	Gly	
			340					345					350			
aga	ggc	cag	ctg	tat	ggg	gac	cgc	ttc	cag	cat	gtc	ttc	tac	ttc	agc	1104
Arg	Gly	Gln	Leu	Tyr	Gly	Asp	Arg	Phe	Gln	His	Val	Phe	Tyr	Phe	Ser	
		355					360					365				
tgc	aga	gag	ctg	gcc	cag	tcc	aag	gtg	gtg	agt	ctc	gct	gag	ctc	atc	1152
Cys	Arg	Glu	Leu	Ala	Gln	Ser	Lys	Val	Val	Ser	Leu	Ala	Glu	Leu	Ile	
	370					375					380					
gga	aaa	gat	ggg	aca	gcc	act	ccg	gct	ccc	att	aga	cag	atc	ctg	tct	1200
Gly	Lys	Asp	Gly	Thr	Ala	Thr	Pro	Ala	Pro	Ile	Arg	Gln	Ile	Leu	Ser	
385					390					395					400	
agg	сса	gag	cgg	ctg	ctc	ttc	atc	ctc	gat	ggt	gta	gat	gag	сса	gga	1248
Arg	Pro	Glu	Arg	Leu	Leu	Phe	Ile	Leu	Asp	Gly	Val	Asp	Glu	Pro	Gly	
				405					410					415		
tgg	gtc	ttg	cag	gag	ccg	agt	tct	gag	ctc	tgt	ctg	cac	tgg	agc	cag	1296
Trp	Val	Leu	Gln	Glu	Pro	Ser	Ser	Glu	Leu	Cys	Leu	His	Trp	Ser	Gln	
			420					425					430			
сса	cag	ccg	gcg	gat	gca	ctg	ctg	ggc	agt	ttg	ctg	ggg	aaa	act	ata	1344
Pro	Gln	Pro	Ala	Asp	Ala	Leu	Leu	Gly	Ser	Leu	Leu	Gly	Lys	Thr	Ile	

435 440 445

ctt	ccc	gag	gca	tcc	ttc	ctg	atc	acg	gct	cgg	acc	aca	gct	ctg	cag	1392
Leu	Pro	Glu	Ala	Ser	Phe	Leu	Ile	Thr	Ala	Arg	Thr	Thr	Ala	Leu	Gln	
	450					455					460					
aac	ctc	att	cct	tct	ttg	gag	cag	gca	cgt	tgg	gta	gag	gtc	ctg	ggg	1440
Asn	Leu	Ile	Pro	Ser	Leu	Glu	Gln	Ala	Arg	Trp	Val	Glu	Val	Leu	Gly	
465					470					475					480	
ttc	tct	gag	tcc	agc	agg	aag	gaa	tat	ttc	tac	aga	tat	ttc	aca	gat	1488
Phe	Ser	Glu	Ser	Ser	Arg	Lys	Glu	Tyr	Phe	Tyr	Arg	Tyr	Phe	Thr	Asp	
				485					490					495		
gaa	agg	caa	gca	att	aga	gcc	ttt	agg	ttg	gtc	aaa	tca	aac	aaa	gag	1536
Glu	Arg	Gln	Ala	Ile	Arg	Ala	Phe	Arg	Leu	Val	Lys	Ser	Asn	Lys	Glu	
			500					505					510			
ctc	tgg	gcc	ctg	tgt	ctt	gtg	ccc	tgg	gtg	tcc	tgg	ctg	gcc	tgc	act	1584
Leu	Trp	Ala	Leu	Cys	Leu	Val	Pro	Trp	Val	Ser	Trp	Leu	Ala	Cys	Thr	
		515					520					525				
tgc	ctg	atg	cag	cag	atg	aag	cgg	aag	gaa	aaa	ctc	aca	ctg	act	tcc	1632
Cys	Leu	Met	Gln	Gln	Met	Lys	Arg	Lys	Glu	Lys	Leu	Thr	Leu	Thr	Ser	
	530					535					540					
aag	acc	acc	aca	acc	ctc	tgt	cta	cat	tac	ctt	gcc	cag	gct	ctc	caa	1680
Lys	Thr	Thr	Thr	Thr	Leu	Cys	Leu	His	Tyr	Leu	Ala	Gln	Ala	Leu	Gln	

	550	555	560
gct cag cca ttg gga	ccc cag ctc aga gad	c ctc tgc tct ctg gct	gct 1728
Ala Gln Pro Leu Gly	Pro Gln Leu Arg Asp	o Leu Cys Ser Leu Ala	Ala
565	570	575	
gag ggc atc tgg caa	aaa aag acc ctt tto	c agt cca gat gac ctc	agg 1776
Glu Gly Ile Trp Gln	Lys Lys Thr Leu Phe	e Ser Pro Asp Asp Leu	Arg
580	585	590	
aag cat ggg tta gat	ggg gcc atc atc tcc	c acc ttc ttg aag atg	ggt 1824
Lys His Gly Leu Asp	Gly Ala Ile Ile Sen	r Thr Phe Leu Lys Met	Gly
595	600	605	
att ct't caa gag cac	ccc atc cct ctg ago	c tac agc ttc att cac	ctc 1872
		c tac age tte att cac	
Ile Leu Gln Glu His	Pro Ile Pro Leu Se	c tac agc ttc att cac r Tyr Ser Phe Ile His	
Ile Leu Gln Glu His	Pro Ile Pro Leu Ser 615	c tac agc ttc att cac r Tyr Ser Phe Ile His	Leu
Ile Leu Gln Glu His 610 tgt ttc caa gag ttc	Pro Ile Pro Leu Ser 615 ttt gca gca atg tco	c tac agc ttc att cac r Tyr Ser Phe Ile His 620	Leu gag 1920
Ile Leu Gln Glu His 610 tgt ttc caa gag ttc	Pro Ile Pro Leu Ser 615 ttt gca gca atg tco	c tac agc ttc att cac r Tyr Ser Phe Ile His 620 c tat gtc ttg gag gat	Leu gag 1920
Ile Leu Gln Glu His 610 tgt ttc caa gag ttc Cys Phe Gln Glu Phe	Pro Ile Pro Leu Ser 615 ttt gca gca atg tco Phe Ala Ala Met Ser	c tac agc ttc att cac r Tyr Ser Phe Ile His 620 c tat gtc ttg gag gat r Tyr Val Leu Glu Asp	Leu gag 1920 Glu
Ile Leu Gln Glu His 610 tgt ttc caa gag ttc Cys Phe Gln Glu Phe 625	Pro Ile Pro Leu Ser 615 ttt gca gca atg tcc Phe Ala Ala Met Ser 630	c tac agc ttc att cac r Tyr Ser Phe Ile His 620 c tat gtc ttg gag gat r Tyr Val Leu Glu Asp	Leu gag 1920 Glu 640

cta gaa gca tat gga ata cat ggc ctg ttt ggg gca tca acc aca cgt 2016 Leu Glu Ala Tyr Gly Ile His Gly Leu Phe Gly Ala Ser Thr Thr Arg

ttc	cta	ttg	ggc	ctg	tta	agt	gat	gag	ggg	gag	aga	gag	atg	gag	aac	2064
Phe	Leu	Leu	Gly	Leu	Leu	Ser	Asp	Glu	Gly	Glu	Arg	Glu	Met	Glu	Asn	
		675					680					685				
atc	ttt	cac	tgc	cgg	ctg	tct	cag	ggg	agg	aac	ctg	atg	cag	tgg	gtc	2112
Ile	Phe	His	Cys	Arg	Leu	Ser	Gln	Gly	Arg	Asn	Leu	Met	Gln	Trp	Val	
	690					695					700					
ccg	tcc	ctg	cag	ctg	ctg	ctg	cag	cca	cac	tct	ctg	gag	tcc	ctc	cac	2160
Pro	Ser	Leu	Gln	Leu	Leu	Leu	Gln	Pro	His	Ser	Leu	Glu	Ser	Leu	His	
705					710					715					720	
tgc	ttg	tac	gag	act	cgg	aac	aaa	acg	ttc	ctg	aca	caa	gtg	atg	gcc	2208
Cys	Leu	Tyr	Glu	Thr	Arg	Asn	Lys	Thr	Phe	Leu	Thr	Gln	Val	Met	Ala	
				725					730					735		
cat	ttc	gaa	gaa	atg	ggc	atg	tgt	gta	gaa	aca	gac	atg	gag	ctc	tta	2256
His	Phe	Glu	Glu	Met	Gly	Met	Cys	Val	Glu	Thr	Asp	Met	Glu	Leu	Leu	
			740					745					750			
gtg	tgc	act	ttc	tgc	att	aaa	ttc	agc	.cgc	cac	gtg	aag	aag	ctt	cag	2304
Val	Cys	Thr	Phe	Cys	Ile	Lys	Phe	Ser	Arg	His	Val	Lys	Lys	Leu	Gln	
		755					760					765				
ctg	att	gag	ggc	agg	cag	cac	aga	tca	aca	tgg	agc	ccc	acc	atg	gta	2352
Leu	Ile	Glu	Gly	Arg	Gln	His	Arg	Ser	Thr	Trp	Ser	Pro	Thr	Met	Val	
	770					775					780					

gtc ctg ttc agg	tgg gtc cca	gtc aca gat	gcc tat tgg cag	att ctc 2400
Val Leu Phe Arg	Trp Val Pro	Val Thr Asp	Ala Tyr Trp Gln	Ile Leu
785	790		795	800
ttc tcc gtc ctc	aag gtc acc	aga aac ctg	aag gag ctg gac	cta agt 2448
Phe Ser Val Leu	Lys Val Thr	Arg Asn Leu	Lys Glu Leu Asp	Leu Ser
	805	810		815
gga aac tcg ctg	agc cac tct	gca gtg aag	agt ctt tgt aag	acc ctg 2496
Gly Asn Ser Leu	Ser His Ser	Ala Val Lys	Ser Leu Cys Lys	Thr Leu
820		825	830	
aga cgc cct cgc	tgc ctc ctg	gag acc ctg	egg ttg gct ggc	tgt ggc 2544
Arg Arg Pro Arg	Cys Leu Leu	Glu Thr Leu	Arg Leu Ala Gly	Cys Gly
835		840	845	
ctc aca gct gag	gac tgc aag	gac ctt gcc	ttt ggg ctg aga	gcc aac 2592
Leu Thr Ala Glu	Asp Cys Lys	Asp Leu Ala	Phe Gly Leu Arg	Ala Asn
850	855		860	
cag acc ctg acc	gag ctg gac	ctg agc ttc	aat gtg ctc acg	gat gct 2640
Gln Thr Leu Thr	Glu Leu Asp	Leu Ser Phe	Asn Val Leu Thr	Asp Ala
865	870		875	880
			cag ccg agc tgc	
Gly Ala Lys His	Leu Cys Gln	Arg Leu Arg	Gln Pro Ser Cys	Lys Leu
	885	890		895

cag cg	a ctg	cag	ctg	gtc	agc	tgt	ggc	ctc	acg	tct	gac	tgc	tgc	cag	2736
Gln Ar	g Leu	Gln	Leu	Val	Ser	Cys	Gly	Leu	Thr	Ser	Asp	Cys	Cys	Gln	
		900					905					910			
gac ct	g gcc	tct	gtg	ctt	agt	gcc	agc	ccc	agc	ctg	aag	gag	cta	gac	2784
Asp Le	ı Ala	Ser	Val	Leu	Ser	Ala	Ser	Pro	Ser	Leu	Lys	Glu	Leu	Asp	
	915					920					925				
ctg ca	g cag	aac	aac	ctg	gat	gac	gtt	ggc	gtg	cga	ctg	ctc	tgt	gag	2832
Leu Gl	n Gln	Asn	Asn	Leu	Asp	Asp	Val	Gly	Val	Arg	Leu	Leu	Cys	Glu	
93)				935					940					
ggg ct	c agg	cat	cct	gcc	tgc	aaa	ctc	ata	cgc	ctg	ggg	aaa	сса	agt	2880
Gly Le	ı Arg	His	Pro	Ala	Cys	Lys	Leu	Ile	Arg	Leu	Gly	Lys	Pro	Ser	
945				950					955					960	
gtg at	g acc	cct	act	gag	ggc	ctg	gat	acg	gga	gag	atg	agt	aat	agc	2928
Val Me	t Thr	Pro	Thr	Glu	Gly	Leu	Asp	Thr	Gly	Glu	Met	Ser	Asn	Ser	
			965					970					975		
aca tc	c tca	ctc	aag	cgg	cag	aga	ctc	gga	tca	gag	agg	gcg	gct	tcc	2976
Thr Se	r Ser	Leu	Lys	Arg	Gln	Arg	Leu	Gly	Ser	Ģlu	Arg	Ala	Ala	Ser	
		980					985					990			
cat gt	t gct	cag	gct	aat	ctc	aaa	ctc	ctg	gac	gtg	agc	aag	atc	ttc	3024
His Va	l Ala	Gln	Ala	Asn	Leu	Lys	Leu	Leu	Asp	Val	Ser	Lys	Ile	Phe	
	995				1	1000				1	1005				

сса	att	gct	gag	att	gca	gag	gaa	agc	tcc	cca	gag	gta	gta	ccg	gtg	3072
Pro	Ile	Ala	Glu	Ile	Ala	Glu	Glu	Ser	Ser	Pro	Glu	Val	Val	Pro	Val	
-	1010					1015					1020					
gaa	ctc	ttg	tgc	gtg	cct	tct	cct	gcc	tct	caa	ggg	gac	ctg	cat	acg	3120
Glu	Leu	Leu	Cys	Val	Pro	Ser	Pro	Ala	Ser	Gln	Gly	Asp	Leu	His	Thr	
1025	5			-	1030				1	1035					1040	
aag	cct	ttg	ggg	act	gac	gat	gac	ttc	tgg	ggc	ccc	acg	ggg	cct	gtg	3168
Lys	Pro	Leu	Gly	Thr	Asp	Asp	Asp	Phe	Trp	Gly	Pro	Thr	Gly	Pro	Val	
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gct	act	gag	gta	gtt	gac	aaa	gaa	aag	aac	ttg	tac	cga	gtt	cac	ttc	3216
Ala	Thr	Glu	Val	Val	Asp	Lys	Glu	Lys	Asn	Leu	Tyr	Arg	Val	His	Phe	
			1060				Ī	1065				-	1070			
cct	gta	gct	ggc	tcc	tac	cgc	tgg	ccc	aac	acg	ggt	ctc	tgc	ttt	gtg	3264
Pro	Val	Ala	Gly	Ser	Tyr	Arg	Trp	Pro	Asn	Thr	Gly	Leu	Cys	Phe	Val	
		1075				1	1080				-	1085				
atg	aga	gaa	gcg	gtg	acc	gtt	gag	att	gaa	ttc	tgt	gtg	tgg	gac	cag	3312
Met	Arg	Glu	Ala	Val	Thr	Val	Glu	Ile	Glu	Phe	Cys	Val	Trp	Asp	Gln	
=	1090				-	1095					1100					
ttc	ctg	ggt	gag	atc	aac	cca	cag	cac	agc	tgg	atg	gtg	gca	ggg	cct	3360
Phe	Leu	Gly	Glu	Ile	Asn	Pro	Gln	His	Ser	Trp	Met	Val	Ala	Gly	Pro	
1105	5			:	1110				1	1115				:	1120	
ctg	ctg	gac	atc	aag	gct	gag	cct	gga	gct	gtg	gaa	gct	gtg	cac	ctc	3408

Leu Leu Asp Ile Lys Ala Glu Pro Gly Ala Val Glu Ala Val His Leu cct cac ttt gtg gct ctc caa ggg ggc cat gtg gac aca tcc ctg ttc Pro His Phe Val Ala Leu Gln Gly Gly His Val Asp Thr Ser Leu Phe caa atq qcc cac ttt aaa gaq gag ggg atg ctc ctg gag aag cca gcc Gln Met Ala His Phe Lys Glu Glu Gly Met Leu Leu Glu Lys Pro Ala agg gtg gag ctg cat cac ata gtt ctg gaa aac ccc agc ttc tcc ccc Arq Val Glu Leu His His Ile Val Leu Glu Asn Pro Ser Phe Ser Pro ttg gga gtc ctc ctg aaa atg atc cat aat gcc ctg cgc ttc att ccc Leu Gly Val Leu Leu Lys Met Ile His Asn Ala Leu Arg Phe Ile Pro qtc acc tct qtg qtq ttq ctt tac cac cgc gtc cat cct gag gaa gtc Val Thr Ser Val Val Leu Leu Tyr His Arg Val His Pro Glu Glu Val acc ttc cac ctc tac ctg atc cca agt gac tgc tcc att cgg aag gcc Thr Phe His Leu Tyr Leu Ile Pro Ser Asp Cys Ser Ile Arg Lys Ala

ata gat gat cta gaa atg aaa ttc cag ttt gtg cga atc cac aag cca

Ile Asp Asp Leu	Glu Met Lys Phe	e Gln Phe Val	Arg Ile His Lys	Pro
1235	1240	0	1245	
ccc ccg ctg acc	cca ctt tat ato	g ggc tgt cgt	tac act gtg tct	ggg 3792
Pro Pro Leu Thr	Pro Leu Tyr Me	t Gly Cys Arg	Tyr Thr Val Ser	Gly
1250	1255	1	.260	
tct ggt tca ggg	atg ctg gaa at	a ctc ccc aag	gaa ctg gag ctc	tgc 3840
Ser Gly Ser Gly	Met Leu Glu Ile	e Leu Pro Lys	Glu Leu Glu Leu	Cys
1265	1270	1275		1280
			gag ttc tac gtt	
•	-		Glu Phe Tyr Val	
	1285	1290	1295	
			~~~ ~~~ ~~~ ~~~	gag 3936
			gac aag aaa gat	
1300		1305	Asp Lys Lys Asp	Giu
1300		1303	1310	
act cta ata taa	gag gcc ttg gt	g aaa cca gga	gat ctc atg cct	gca 3984
			Asp Leu Met Pro	
1315	132		1325	
act act ctg atc	cct cca gcc cg	c ata gcc gta	cct tca cct ctg	gat 4032
Thr Thr Leu Ile	Pro Pro Ala Ar	g Ile Ala Val	Pro Ser Pro Leu	Asp
1330	1335	1	1340	
gcc ccg cag ttg	ctg cac ttt gt	g gac cag tat	cga gag cag ctg	ata 4080
Ala Pro Gln Leu	Leu His Phe Va	ıl Asp Gln Tyr	Arg Glu Gln Leu	ı Ile

1345	1350	1355	1360
gcc cga gtg aca	tcg gtg gag gtt	gtc ttg gac aaa	ctg cat gga cag 4128
Ala Arg Val Thr	Ser Val Glu Val	Val Leu Asp Lys	Leu His Gly Gln
=	1365	1370	1375
gtg ctg agc cag	gag cag tac gag	agg gtg ctg gct	gag aac acg agg 4176
Val Leu Ser Gln	Glu Gln Tyr Glu	Arg Val Leu Ala	Glu Asn Thr Arg
1380		1385	1390
ccc agc cag atg	cgg aag ctg tto	agc ttg agc cag	tcc tgg gac cgg 4224
Pro Ser Gln Met	Arg Lys Leu Phe	Ser Leu Ser Gln	Ser Trp Asp Arg
1395	1400		1405
aag tgc aaa gat	gga ctc tac caa	gcc ctg aag gag	acc cat cct cac 4272
Lys Cys Lys Asp	Gly Leu Tyr Glr	Ala Leu Lys Glu	Thr His Pro His
1410	1415	1420	
ctc att atg gaa	ctc tgg gag aag	ggc agc aaa aag	gga ctc ctg cca 4320
Leu Ile Met Glu	Leu Trp Glu Lys	Gly Ser Lys Lys	Gly Leu Leu Pro
1425	1430	1435	1440

ctc agc agc tga 4332
Leu Ser Ser

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<213> Homo sapiens

<400> 6

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Lys Lys Glu Glu Leu Lys Glu Phe Gln Leu Leu Leu Ala Asn Lys Ala 20 25 30

His Ser Arg Ser Ser Ser Gly Glu Thr Pro Ala Gln Pro Glu Lys Thr

35 40 45

Ser Gly Met Glu Val Ala Ser Tyr Leu Val Ala Gln Tyr Gly Glu Gln
50 55 60

Arg Ala Trp Asp Leu Ala Leu His Thr Trp Glu Gln Met Gly Leu Arg
65 70 75 80

Ser Leu Cys Ala Gln Ala Gln Glu Gly Ala Gly His Ser Pro Ser Phe

85 90 95

Pro Tyr Ser Pro Ser Glu Pro His Leu Gly Ser Pro Ser Gln Pro Thr

100 105 110

Ser Thr Ala Val Leu Met Pro Trp Ile His Glu Leu Pro Ala Gly Cys
115 120 125

Thr Gln Gly Ser Glu Arg Arg Val Leu Arg Gln Leu Pro Asp Thr Ser

130 135 140

Gly Arg Arg Trp Arg Glu·Ile Ser Ala Ser Leu Leu Tyr Gln Ala Leu 145 150 155 160

Pro Ser Ser Pro Asp His Glu Ser Pro Ser Gln Glu Ser Pro Asn Ala 165 170 175

Pro Thr Ser Thr Ala Val Leu Gly Ser Trp Gly Ser Pro Pro Gln Pro
180 185 190

Ser Leu Ala Pro Arg Glu Gln Glu Ala Pro Gly Thr Gln Trp Pro Leu
195 200 205

Asp Glu Thr Ser Gly Ile Tyr Tyr Thr Glu Ile Arg Glu Arg Glu Arg
210 215 220

Glu Lys Ser Glu Lys Gly Arg Pro Pro Trp Ala Ala Val Val Gly Thr
225 230 235 240

Pro Pro Gln Ala His Thr Ser Leu Gln Pro His His His Pro Trp Glu
245
250
255

Pro Ser Val Arg Glu Ser Leu Cys Ser Thr Trp Pro Trp Lys Asn Glu
260 265 270

Asp Phe Asn Gln Lys Phe Thr Gln Leu Leu Leu Gln Arg Pro His
275 280 285

Pro Arg Ser Gln Asp Pro Leu Val Lys Arg Ser Trp Pro Asp Tyr Val Glu Glu Asn Arg Gly His Leu Ile Glu Ile Arg Asp Leu Phe Gly Pro Gly Leu Asp Thr Gln Glu Pro Arg Ile Val Ile Leu Gln Gly Ala Ala Gly Ile Gly Lys Ser Thr Leu Ala Arg Gln Val Lys Glu Ala Trp Gly Arg Gly Gln Leu Tyr Gly Asp Arg Phe Gln His Val Phe Tyr Phe Ser Cys Arg Glu Leu Ala Gln Ser Lys Val Val Ser Leu Ala Glu Leu Ile Gly Lys Asp Gly Thr Ala Thr Pro Ala Pro Ile Arg Gln Ile Leu Ser Arg Pro Glu Arg Leu Leu Phe Ile Leu Asp Gly Val Asp Glu Pro Gly 

Pro Gln Pro Ala Asp Ala Leu Leu Gly Ser Leu Leu Gly Lys Thr Ile

Trp Val Leu Gln Glu Pro Ser Ser Glu Leu Cys Leu His Trp Ser Gln

435 440 445

Leu Pro Glu Ala Ser Phe Leu Ile Thr Ala Arg Thr Thr Ala Leu Gln
450 455 460

Asn Leu Ile Pro Ser Leu Glu Gln Ala Arg Trp Val Glu Val Leu Gly
465 470 475 480

Phe Ser Glu Ser Ser Arg Lys Glu Tyr Phe Tyr Arg Tyr Phe Thr Asp
485 490 495

Glu Arg Gln Ala Ile Arg Ala Phe Arg Leu Val Lys Ser Asn Lys Glu
500 505 510

Leu Trp Ala Leu Cys Leu Val Pro Trp Val Ser Trp Leu Ala Cys Thr
515 520 525

Cys Leu Met Gln Gln Met Lys Arg Lys Glu Lys Leu Thr Leu Thr Ser
530 535 540

Lys Thr Thr Thr Thr Leu Cys Leu His Tyr Leu Ala Gln Ala Leu Gln 545 550 555 560

Ala Gln Pro Leu Gly Pro Gln Leu Arg Asp Leu Cys Ser Leu Ala Ala 565 570 575

Glu Gly Ile Trp Gln Lys Lys Thr Leu Phe Ser Pro Asp Asp Leu Arg
580 585 590

Lys His Gly Leu Asp Gly Ala Ile Ile Ser Thr Phe Leu Lys Met Gly Ile Leu Gln Glu His Pro Ile Pro Leu Ser Tyr Ser Phe Ile His Leu Cys Phe Gln Glu Phe Phe Ala Ala Met Ser Tyr Val Leu Glu Asp Glu Lys Gly Arg Gly Lys His Ser Asn Cys Ile Ile Asp Leu Glu Lys Thr Leu Glu Ala Tyr Gly Ile His Gly Leu Phe Gly Ala Ser Thr Thr Arg Phe Leu Leu Gly Leu Leu Ser Asp Glu Gly Glu Arg Glu Met Glu Asn Ile Phe His Cys Arg Leu Ser Gln Gly Arg Asn Leu Met Gln Trp Val 

Pro Ser Leu Gln Leu Leu Gln Pro His Ser Leu Glu Ser Leu His
705 710 715 720

Cys Leu Tyr Glu Thr Arg Asn Lys Thr Phe Leu Thr Gln Val Met Ala
725 730 735

His Phe Glu Glu Met Gly Met Cys Val Glu Thr Asp Met Glu Leu Leu

740 745 . 750

Val Cys Thr Phe Cys Ile Lys Phe Ser Arg His Val Lys Lys Leu Gln
755 760 .765

Leu Ile Glu Gly Arg Gln His Arg Ser Thr Trp Ser Pro Thr Met Val
770 775 780

Val Leu Phe Arg Trp Val Pro Val Thr Asp Ala Tyr Trp Gln Ile Leu
785 790 795 800

Phe Ser Val Leu Lys Val Thr Arg Asn Leu Lys Glu Leu Asp Leu Ser 805 810 815

Gly Asn Ser Leu Ser His Ser Ala Val Lys Ser Leu Cys Lys Thr Leu 820 825 830

Arg Arg Pro Arg Cys Leu Leu Glu Thr Leu Arg Leu Ala Gly Cys Gly 835 840 845

Leu Thr Ala Glu Asp Cys Lys Asp Leu Ala Phe Gly Leu Arg Ala Asn 850 855 860

Gln Thr Leu Thr Glu Leu Asp Leu Ser Phe Asn Val Leu Thr Asp Ala 865 870 875 880

Gly Ala Lys His Leu Cys Gln Arg Leu Arg Gln Pro Ser Cys Lys Leu 885 890 895 Gln Arg Leu Gln Leu Val Ser Cys Gly Leu Thr Ser Asp Cys Cys Gln
900 905 910

Asp Leu Ala Ser Val Leu Ser Ala Ser Pro Ser Leu Lys Glu Leu Asp
915 920 925

Leu Gln Gln Asn Asn Leu Asp Asp Val Gly Val Arg Leu Leu Cys Glu
930 935 940

Gly Leu Arg His Pro Ala Cys Lys Leu Ile Arg Leu Gly Lys Pro Ser 945 950 955 960

Val Met Thr Pro Thr Glu Gly Leu Asp Thr Gly Glu Met Ser Asn Ser
965 970 975

Thr Ser Ser Leu Lys Arg Gln Arg Leu Gly Ser Glu Arg Ala Ala Ser
980 985 990

His Val Ala Gln Ala Asn Leu Lys Leu Leu Asp Val Ser Lys Ile Phe
995 1000 1005

Pro Ile Ala Glu Ile Ala Glu Glu Ser Ser Pro Glu Val Val Pro Val
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Glu Leu Cys Val Pro Ser Pro Ala Ser Gln Gly Asp Leu His Thr
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Lys Pro Leu Gly Thr Asp Asp Phe Trp Gly Pro Thr Gly Pro Val

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Ala Thr Glu Val Val Asp Lys Glu Lys Asn Leu Tyr Arg Val His Phe
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Pro Val Ala Gly Ser Tyr Arg Trp Pro Asn Thr Gly Leu Cys Phe Val
1075 1080 1085

Met Arg Glu Ala Val Thr Val Glu Ile Glu Phe Cys Val Trp Asp Gln
1090 1095 1100

Phe Leu Gly Glu Ile Asn Pro Gln His Ser Trp Met Val Ala Gly Pro
1105 1110 1115 1120

Leu Leu Asp Ile Lys Ala Glu Pro Gly Ala Val Glu Ala Val His Leu
1125 1130 1135

Pro His Phe Val Ala Leu Gln Gly Gly His Val Asp Thr Ser Leu Phe
1140 1145 1150

Gln Met Ala His Phe Lys Glu Glu Gly Met Leu Leu Glu Lys Pro Ala 1155 1160 1165

Arg Val Glu Leu His His Ile Val Leu Glu Asn Pro Ser Phe Ser Pro
1170 1175 1180

Leu Gly Val Leu Leu Lys Met Ile His Asn Ala Leu Arg Phe Ile Pro

1185 1190 1195 1200

Val Thr Ser Val Val Leu Leu Tyr His Arg Val His Pro Glu Glu Val
1205 1210 1215

Thr Phe His Leu Tyr Leu Ile Pro Ser Asp Cys Ser Ile Arg Lys Ala 1220 1225 1230

Ile Asp Asp Leu Glu Met Lys Phe Gln Phe Val Arg Ile His Lys Pro
1235 1240 1245

Pro Pro Leu Thr Pro Leu Tyr Met Gly Cys Arg Tyr Thr Val Ser Gly
1250 1255 1260

Ser Gly Ser Gly Met Leu Glu Ile Leu Pro Lys Glu Leu Glu Leu Cys 1265 1270 1275 1280

Tyr Arg Ser Pro Gly Glu Asp Gln Leu Phe Ser Glu Phe Tyr Val Gly
1285 1290 1295

His Leu Gly Ser Gly Ile Arg Leu Gln Val Lys Asp Lys Lys Asp Glu
1300 1305 1310

Thr Leu Val Trp Glu Ala Leu Val Lys Pro Gly Asp Leu Met Pro Ala 1315 1320 1325

Thr Thr Leu Ile Pro Pro Ala Arg Ile Ala Val Pro Ser Pro Leu Asp 1330 1335 1340

Ala Pro Gln Leu Leu His Phe Val Asp Gln Tyr Arg Glu Gln Leu Ile

1345 1350

1355

1360

Ala Arg Val Thr Ser Val Glu Val Val Leu Asp Lys Leu His Gly Gln

1365

1370

1375

Val Leu Ser Gln Glu Gln Tyr Glu Arg Val Leu Ala Glu Asn Thr Arg

1380

1385

1390

Pro Ser Gln Met Arg Lys Leu Phe Ser Leu Ser Gln Ser Trp Asp Arg

1395

1400

1405

Lys Cys Lys Asp Gly Leu Tyr Gln Ala Leu Lys Glu Thr His Pro His

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Leu Ile Met Glu Leu Trp Glu Lys Gly Ser Lys Lys Gly Leu Leu Pro 1425 1430 1435 1440

Leu Ser Ser

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<213> Homo sapiens

<220>

<221> CDS

<222> (1)..(1296)

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1				5					10					15		
gtc	aac	tat	ctg	ggg	ggg	aca	ttc	сса	gga	gac	att	tgc	tca	gaa	gag	96
Val	Asn	Tyr	Leu	Gly	Gly	Thr	Phe	Pro	Gly	Asp	Ile	Cys	Ser	Glu	Glu	
			20					25					30			
aat	caa	ata	gtt	tcc	tct	tat	gct	tct	aaa	gtc	tgt	ttt	gag	atc	gaa	144
Asn	Gln	Ile	Val	Ser	Ser	Tyr	Ala	Ser	Lys	Val	Cys	Phe	Glu	Ile	Glu	
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gaa	gat	tat	aaa	aat	cgt	cag	ttt	ctg	ggg	cct	gaa	gga	aat	gtg	gat	192
Glu	Asp	Tyr	Lys	Asn	Arg	Gln	Phe	Leu	Gly	Pro	Glu	Gly	Asn	Val	Asp	
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gtt	gag	ttg	att	gat	aag	agc	aca	aac	aga	tac	agc	gtt	tgg	ttc	ccc	240
Val	Glu	Leu	Ile	Asp	Lys	Ser	Thr	Asn	Arg	Tyr	Ser	Val	Trp	Phe	Pro	
65					70					75					80	
act	gct	ggc	tgg	tat	ctg	tgg	tca	gcc	aca	ggc	ctc	ggc	ttc	ctg	gta	288
Thr	Ala	Gly	Trp	Tyr	Leu	Trp	Ser	Ala	Thr	Gly	Leu	Gly	Phe	Leu	Val	
				85					90					95		
agg	gat	gag	gtc	aca	gtg	acg	att	gcg	ttt	ggt	tcc	tgg	agt	cag	cac	336

Arg Asp Glu Val Thr Val Thr Ile Ala Phe Gly Ser Trp Ser Gln His

ctg	gcc	ctg	gac	ctg	cag	cac	cat	gaa	cag	tgg	ctg	gtg	ggc	ggc	ccc	384
Leu	Ala	Leu	Asp	Leu	Gln	His	His	Glu	Gln	Trp	Leu	Val	Gly	Gly	Pro	
		115					120					125				
ttg	ttt	gat	gtc	act	gca	gag	cca	gag	gag	gct	gtc	gcc	gaa	atc	cac	432
Leu	Phe	Asp	Val	Thr	Ala	Glu	Pro	Glu	Glu	Ala	Val	Ala	Glu	Ile	His	
	130					135					140					
ctc	ccc	cac	ttc	atc	tcc	ctc	caa	ggt	gag	gtg	gac	gtc	tcc	tgg	ttt	480
Leu	Pro	His	Phe	Ile	Ser	Leu	Gln	Gly	Glu	Val	Asp	Val	Ser	Trp	Phe	
145					150					155					160	
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ctc	gtt	gcc	cat	ttt	aag	aat	gaa	ggg	atg	gtc	ctg	gag	cat	cca	gcc	528
Leu	Val	Ala	His	Phe	Lys	Asn	Glu	Gly	Met	Val	Leu	Glu	His	Pro	Ala	
				165					170					175		
cgg	gtg	gag	cct	ttc	tat	gct	gtc	ctg	gaa	agc	ccc	agc	ttc	tct	ctg	576
Arg	Val	Glu	Pro	Phe	Tyr	Ala	Val	Leu	Glu	Ser	Pro	Ser	Phe	Ser	Leu	
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Met	Gly	Ile	Leu	Leu	Arg	Ile	Ala	Ser	Gly	Thr	Arg	Leu	Ser	Ile	Pro	
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atc	act	tcc	aac	aca	ttg	atc	tat	tat	cac	ccc	cac	ccc	gaa	gat	att	672
Ile	Thr	Ser	Asn	Thr	Leu	Ile	Tyr	Tyr	His	Pro	His	Pro	Glu	Asp	Ile	
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aag	ttc	cac	ttg	tac	ctt	gtc	ccc	agc	gac	gcc	ttg	cta	aca	aag	gcg	720
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ata	gat	gat	gag	gaa	gat	cgc	ttc	cat	ggt	gtg	cgc	ctg	cag	act	tcg	768
Ile	Asp	Asp	Glu	Glu	Asp	Arg	Phe	His	Gly	Val	Arg	Leu	Gln	Thr	Ser	
				245					250					255		
ccc	cca	atg	gaa	ссс	ctg	aac	ttt	ggt	tcc	agt	tat	att	gtg	tct	aat	816
Pro	Pro	Met	Glu	Pro	Leu	Asn	Phe	Gly	Ser	Ser	Tyr	Ile	Val	Ser	Asn	
			260					265					270			
tct	gct	aac	ctg	aaa	gta	atg	ccc	aag	gag	ttg	aaa	ttg	tcc	tac	agg	864
Ser	Ala	Asn	Leu	Lys	Val	Met	Pro	Lys	Glu	Leu	Lys	Leu	Ser	Tyr	Arg	
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agc	cct	gga	gaa	att	cag	cac	ttc	tca	aaa	ttc	tat	gct	ggg	cag	atg	912
Ser	Pro	Gly	Glu	Ile	Gln	His	Phe	Ser	Lys	Phe	Tyr	Ala	Gly	Gln	Met	
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aag	gaa	ccc	att	caa	ctt	gag	att	act	gaa	aaa	aga	cat	ggg	act	ttg	960
Lys	Glu	Pro	Ile	Gln	Leu	Glu	Ile	Thr	Glu	Lys	Arg	His	Gly	Thr	Leu	
305					310					315					320	
gtg	tgg	gat	act	gag	gtg	aag	cca	gtg	gat	ctc	cag	ctt	gta	gct	gca	1008
Val	Trp	Asp	Thr	Glu	Val	Lys	Pro	Val	Asp	Leu	Gln	Leu	Val	Ala	Ala	
				325					330					335		

tca gcc cct cct	cct ttc tca g	ggt gca gcc ttt	gtg aag gag aad	cac 1056
Ser Ala Pro Pro	Pro Phe Ser G	Gly Ala Ala Phe	Val Lys Glu Ası	n His
340		345	350	
cgg caa ctc caa	gcc agg atg g	ggg gac ctg aaa	ggg gtg ctc ga	gat 1104
Arg Gln Leu Gln	Ala Arg Met G	Gly Asp Leu Lys	Gly Val Leu Asp	Asp
355	3	360	365	
			, ,	
ctc cag gac aat	gag gtt ctt a	act gag aat gag	aag gag ctg gto	g gag 1152
Leu Gln Asp Asn	Glu Val Leu T	Thr Glu Asn Glu	Lys Glu Leu Va	l Glu
370	375		380	
cag gaa aag aca	cgg cag agc a	aag aat gag gcc	ttg ctg agc ato	g gtg 1200
Gln Glu Lys Thr	Arg Gln Ser I	Lys Asn Glu Ala	Leu Leu Ser Me	. Val
385	390	395		400
gag aag aaa ggg	gac ctg gcc c	ctg gac gtg ctc	ttc aga agc at	t agt 1248
Glu Lys Lys Gly	Asp Leu Ala I	Leu Asp Val Leu	Phe Arg Ser Ile	e Ser
	405	410	41	5
gaa agg gac cct	tac ctc gtg t	tcc tat ctt aga	cag cag aat tt	g taa 1296
Glu Arg Asp Pro	Tyr Leu Val S	Ser Tyr Leu Arg	Gln Gln Asn Le	1
420	,	425	430	
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cagaaatgtg atcattgatt tcagtgttca agacagaaga agactgggta acatctatca 1416

cacaggettt caggacagae ttgtaacetg geatgtaeet attgaetgta teeteatgea 1476

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<212> PRT

<213> Homo sapiens

<400> 8

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Val Asn Tyr Leu Gly Gly Thr Phe Pro Gly Asp Ile Cys Ser Glu Glu
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Asn Gln Ile Val Ser Ser Tyr Ala Ser Lys Val Cys Phe Glu Ile Glu
35 40 45

Glu Asp Tyr Lys Asn Arg Gln Phe Leu Gly Pro Glu Gly Asn Val Asp
50 55 60

Val Glu Leu Ile Asp Lys Ser Thr Asn Arg Tyr Ser Val Trp Phe Pro
65 70 75 80

Thr Ala Gly Trp Tyr Leu Trp Ser Ala Thr Gly Leu Gly Phe Leu Val
85 90 95

Arg Asp Glu Val Thr Val Thr Ile Ala Phe Gly Ser Trp Ser Gln His Leu Ala Leu Asp Leu Gln His His Glu Gln Trp Leu Val Gly Gly Pro Leu Phe Asp Val Thr Ala Glu Pro Glu Glu Ala Val Ala Glu Ile His Leu Pro His Phe Ile Ser Leu Gln Gly Glu Val Asp Val Ser Trp Phe Leu Val Ala His Phe Lys Asn Glu Gly Met Val Leu Glu His Pro Ala Arq Val Glu Pro Phe Tyr Ala Val Leu Glu Ser Pro Ser Phe Ser Leu Met Gly Ile Leu Leu Arg Ile Ala Ser Gly Thr Arg Leu Ser Ile Pro Ile Thr Ser Asn Thr Leu Ile Tyr Tyr His Pro His Pro Glu Asp Ile Lys Phe His Leu Tyr Leu Val Pro Ser Asp Ala Leu Leu Thr Lys Ala 

Ile Asp Asp Glu Glu Asp Arg Phe His Gly Val Arg Leu Gln Thr Ser

245 250 255

Pro Pro Met Glu Pro Leu Asn Phe Gly Ser Ser Tyr Ile Val Ser Asn
260 265 270

Ser Ala Asn Leu Lys Val Met Pro Lys Glu Leu Lys Leu Ser Tyr Arg 275 280 285

Ser Pro Gly Glu Ile Gln His Phe Ser Lys Phe Tyr Ala Gly Gln Met 290 295 300

Lys Glu Pro Ile Gln Leu Glu Ile Thr Glu Lys Arg His Gly Thr Leu 305 310 315 320

Val Trp Asp Thr Glu Val Lys Pro Val Asp Leu Gln Leu Val Ala Ala
325 330 335

Ser Ala Pro Pro Pro Phe Ser Gly Ala Ala Phe Val Lys Glu Asn His 340 345 350

Arg Gln Leu Gln Ala Arg Met Gly Asp Leu Lys Gly Val Leu Asp Asp
355
360
365

Leu Gln Asp Asn Glu Val Leu Thr Glu Asn Glu Lys Glu Leu Val Glu
370 380

Gln Glu Lys Thr Arg Gln Ser Lys Asn Glu Ala Leu Leu Ser Met Val 385 390 395 400 Glu Lys Lys Gly Asp Leu Ala Leu Asp Val Leu Phe Arg Ser Ile Ser
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420 425 430

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<211> 4556

<212> DNA.

<213> Artificial Sequence

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<221> CDS

<222> (1)..(4365)

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<223> Description of Artificial Sequence: Synthetic

Construct

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1 5 10 15

aag aag gag gag ctg aag gag ttc cag ctt ctg ctc gcc aat aaa gcg 96
Lys Lys Glu Glu Leu Lys Glu Phe Gln Leu Leu Ala Asn Lys Ala

20

25

30

cac	tcc	agg	agc	tct	tcg	ggt	gag	aca	ccc	gct	cag	сса	gag	aag	acg	144
His	Ser	Arg	Ser	Ser	Ser	Gly	Glu	Thr	Pro	Ala	Gln	Pro	Glu	Lys	Thr	
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Ser	Gly	Met	Glu	Val	Ala	Ser	Tyr	Leu	Val	Ala	Gln	Tyr	Gly	Glu	Gln	
	50					55					60					
cgg	gcc	tgg	gac	cta	gcc	ctc	cat	acc	tgg	gag	cag	atg	ggg	ctg	agg	240
Arg	Ala	Trp	Asp	Leu	Ala	Leu	His	Thr	Trp	Glu	Gln	Met	Gly	Leu	Arg	
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tca	ctg	tgc	gcc	caa	gcc	cag	gaa	ggg	gca	ggc	cac	tct	ccc	tca	ttc	288
Ser	Leu	Cys	Ala	Gln	Ala	Gln	Glu	Gly	Ala	Gly	His	Ser	Pro	Ser	Phe	
				85					90					95		
ccc	tac	agc	сса	agt	gaa	ccc	cac	ctg	ggg	tct	ccc	agc	caa	ccc	acc	336
Pro	Tyr	Ser	Pro	Ser	Glu	Pro	His	Leu	Gly	Ser	Pro	Ser	Gln	Pro	Thr	
			100					105					110			
tcc	acc	gca	gtg	cta	atg	ccc	tgg	atc	cat	gaa	ttg	ccg	gcg	ggg	tgc	384
Ser	Thr	Ala	Val	Leu	Met	Pro	Trp	Ile	His	Glu	Leu	Pro	Ala	Gly	Cys	
		115					120					125				
acc	cag	ggc	tca	gag	aga	agg	gtt	ttg	aga	cag	ctg	cct	gac	aca	tct	432
Thr	Gln	Gly	Ser	Glu	Arg	Arg	Val	Leu	Arg	Gln	Leu	Pro	Asp	Thr	Ser	
	130					135					140					

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Pro	Ser	Ser	Pro	Asp	His	Glu	Ser	Pro	Ser	Gln	Glu	Ser	Pro	Asn	Ala	
				165					170					175		
ccc	aca	tcc	aca	gca	gtg	ctg	ggg	agc	tgg	gga	tcc	сса	cct	cag	ccc	576
Pro	Thr	Ser	Thr	Ala	Val	Leu	Gly	Ser	Trp	Gly	Ser	Pro	Pro	Gln	Pro	
			180					185					190			
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Ser	Leu	Ala	Pro	Arq	Glu	Gln	Glu	Ala	Pro	Gly	Thr	Gln	Trp	Pro	Leu	
		195					200			-		205	-			
nat	gaa	aca	tca	aas	att	tac	tac	aca	naa	atc	aga	gaa	aga	gag	aga	672
-		_							-		_			Glu	_	0.2
пор	210	1111	JCI	Ory	110	215	ı yı	1111	Olu	110	220	JIU	111.9	Olu	111.9	
	210					213					220					
																700
														gga		720
Glu	Lys	Ser	Glu	Lys	Gly	Arg	Pro	Pro	Trp	Ala	Ala	Val	Val	Gly	Thr	
225					230					235					240	
ccc	сса	cag	gcg	cac	acc	agc	cta	cag	ccc	cac	cac	cac	cca	tgg	gag	768
Pro	Pro	Gln	Ala	His	Thr	Ser	Leu	Gln	Pro	His	His	His	Pro	Trp	Glu	
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CCL	tct	gtg	aga	gag	agc	ctc	tgt	tcc	aca	tgg	ccc	tgg	aaa	aat	gag	816
Pro	Ser	Val	Arg	Glu	Ser	Leu	Cys	Ser	Thr	Trp	Pro	Trp	Lys	Asn	Glu	
			260					265					270			
gat	ttt	aac	caa	aaa	ttc	aca	cag	ctg	cta	ctt	cta	caa	aga	cct	cac	864
Asp	Phe	Asn	Gln	Lys	Phe	Thr	Gln	Leu	Leu	Leu	Leu	Gln	Arg	Pro	His	
		275					280					285				
ccc	aga	agc	caa	gat	ccc	ctg	gtc	aag	aga	agc	tgg	cct	gat	tat	gtg	912
Pro	Arg	Ser	Gln	Asp	Pro	Leu	Val	Lys	Arg	Ser	Trp	Pro	Asp	Tyr	Val	
	290					295					300					
gag	gag	aat	cga	gga	cat	tta	att	gag	atc	aga	gac	tta	ttt	ggc	сса	960
Glu	Glu	Asn	Arg	Gly	His	Leu	Ile	Glu	Ile	Arg	Asp	Leu	Phe	Gly	Pro	
305					310					315					320	
303					010											
303					310											
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ggc					gaa					ata				gct Ala	gct	1008
ggc					gaa					ata					gct	1008
ggc				Gln	gaa				Val	ata				Ala	gct	1008
ggc Gly	Leu	Asp	Thr	Gln 325	gaa Glu	Pro	Arg	Ile	Val 330	ata Ile	Leu	Gln	Gly	Ala	gct Ala	1008
ggc Gly gga	Leu	Asp	Thr	Gln 325 tca	gaa Glu aca	Pro	Arg	Ile	Val 330 cag	ata Ile gtg	Leu	Gln	Gly	Ala 335	gct Ala	
ggc Gly gga	Leu	Asp	Thr	Gln 325 tca	gaa Glu aca	Pro	Arg	Ile	Val 330 cag	ata Ile gtg	Leu	Gln	Gly	Ala 335 tgg	gct Ala	
ggc Gly gga	Leu	Asp	Thr aag Lys	Gln 325 tca	gaa Glu aca	Pro	Arg	Ile agg Arg	Val 330 cag	ata Ile gtg	Leu	Gln	Gly gcc Ala	Ala 335 tgg	gct Ala	
ggc Gly gga Gly	Leu att Ile	Asp ggg Gly	Thr aag Lys 340	Gln 325 tca Ser	gaa Glu aca Thr	Pro ctg Leu	Arg gcc Ala	agg Arg 345	Val 330 cag Gln	ata Ile gtg Val	Leu aag Lys	Gln gaa Glu	gcc Ala 350	Ala 335 tgg	gct Ala ggg Gly	
ggc Gly gga Gly	Leu att Ile	ggg Gly cag	Thr  aag Lys 340	Gln 325 tca Ser	gaa Glu aca Thr	Pro ctg Leu	gcc Ala	agg Arg 345	Val 330 cag Gln cag	ata Ile gtg Val	Leu aag Lys gtc	Gln gaa Glu ttc	gcc Ala 350	Ala 335 tgg Trp	gct Ala ggg Gly	1056
ggc Gly gga Gly	Leu att Ile	ggg Gly cag	Thr  aag Lys 340	Gln 325 tca Ser	gaa Glu aca Thr	Pro ctg Leu	gcc Ala	agg Arg 345	Val 330 cag Gln cag	ata Ile gtg Val	Leu aag Lys gtc	Gln gaa Glu ttc	gcc Ala 350	Ala 335 tgg Trp	gct Ala ggg Gly	1056

tgc aga gag ctg gcc cag tcc aag gtg gtg agt ctc gct gag ctc atc 1152

Cys	Arg	Glu	Leu	Ala	Gln	Ser	Lys	Val	Val	Ser	Leu	Ala	Glu	Leu	Ile	
	370					375					380					
gga	aaa	gat	ggg	aca	gcc	act	ccg	gct	ccc	att	aga	cag	atc	ctg	tct	1200
Gly	Lys	Asp	Gly	Thr	Ala	Thr	Pro	Ala	Pro	Ile	Arg	Gln	Ile	Leu	Ser	
385					390					395					400	
agg	cca	gag	cgg	ctg	ctc	ttc	atc	ctc	gat	ggt	gta	gat	gag	сса	gga	1248
Arg	Pro	Glu	Arg	Leu	Leu	Phe	Ile	Leu	Asp	Gly	Val	Asp	Glu	Pro	Gly	
				405					410					415		
tgg	gtc	ttg	cag	gag	ccg	agt	tct	gag	ctc	tgt	ctg	cac	tgg	agc	cag	1296
Trp	Val	Leu	Gln	Glu	Pro	Ser	Ser	Glu	Leu	Cys	Leu	His	Trp	Ser	Gln	
			420					425					430			
cca	cag	ccg	gcg	gat	gca	ctg	ctg	ggc	agt	ttg	ctg	ggg	aaa	act	ata	1344
Pro	Gln	Pro	Ala	Asp	Ala	Leu	Leu	Gly	Ser	Leu	Leu	Gly	Lys	Thr	Ile	
		435					440					445				
ctt	ccc	gag	gca	tcc	ttc	ctg	atc	acg	gct	cgg	acc	aca	gct	ctg	cag	1392
Leu	Pro	Glu	Ala	Ser	Phe	Leu	Ile	Thr	Ala	Arg	Thr	Thr	Ala	Leu	Gln	
	450					455					460					
aac	ctc	att	cct	tct	ttg	gag	cag	gca	cgt	tgg	gta	gag	gtc	ctg	ggg	1440
Asn	Leu	Ile	Pro	Ser	Leu	Glu	Gln	Ala	Arg	Trp	Val	Glu	Val	Leu	Gly	
465					470					475					480	
ttc	tct	gag	tcc	agc	agg	aag	gaa	tat	ttc	tac	aga	tat	ttc	aca	gat	1488

LIIC	JCI	OIU	JCI	JCI	1119	цуз	Olu	- y <del>-</del>	1110	- 1 -	9	- 1 -				
				485					490					495		
gaa	agg	caa	gca	att	aga	gcc	ttt	agg	ttg	gtc	aaa	tca	aac	aaa	gag	1536
Glu	Arg	Gln	Ala	Ile	Arg	Ala	Phe	Arg	Leu	Val	Lys	Ser	Asn	Lys	Glu	
			500					505					510			
				t t.	- 1- 4-			<b>.</b>		<b>.</b>			~~~		a a b	1 5 0 4
		-	_	_									gcc			1584
Leu	Trp	Ala	Leu	Cys	Leu	Val	Pro	Trp	Val	Ser	Trp	Leu	Ala	Cys	Thr	
		515					520					525				
tgc	ctg	atg	cag	cag	atg	aag	cgg	aag	gaa	aaa	ctc	aca	ctg	act	tcc	1632
Cys	Leu	Met	Gln	Gln	Met	Lys	Arg	Lys	Glu	Lys	Leu	Thr	Leu	Thr	Ser	
	530					535					540					
aag	acc	acc	aca	acc	ctc	tgt	cta	cat	tac	ctt	gcc	cag	gct	ctc	caa	1680
Lys	Thr	Thr	Thr	Thr	Leu	Cys	Leu	His	Tyr	Leu	Ala	Gln	Ala	Leu	Gln	
545					550					555					560	
act	caq	cca	tta	ααa	ccc	caq	ctc	aσa	gac	ctc	tac	tct	ctg	qct	gct	1728
													Leu			
AIG	0111	110	пси	565	110	OIII	псα	1119	570	Lea	Oyo	001	Lou	575	1124	
				363					370					373		•
gag	ggc	atc	tgg	caa	aaa	aag	acc	ctt	ttc	agt	cca	gat	gac	ctc	agg	1776
Glu	Gly	Ile	Trp	Gln	Lys	Lys	Thr	Leu	Phe	Ser	Pro	Asp	Asp	Leu	Arg	
			580					585					590			
aag	cat	ggg	tta	gat	ggg	gcc	atc	atc	tcc	acc	ttc	ttg	aag	atg	ggt	1824
Lys	His	Gly	Leu	Asp	Gly	Ala	Ile	Ile	Ser	Thr	Phe	Leu	Lys	Met	Gly	
-		-		-	_											

Phe Ser Glu Ser Ser Arg Lys Glu Tyr Phe Tyr Arg Tyr Phe Thr Asp

595 600 605

att	ctt	caa	gag	cac	ccc	atc	cct	ctg	agc	tac	agc	ttc	att	cac	ctc	1872
Ile	Leu	Gln	Glu	His	Pro	Ile	Pro	Leu	Ser	Tyr	Ser	Phe	Ile	His	Leu	
	610					615					620					
tgt	ttc	caa	gag	ttc	ttt	gca	gca	atg	tcc	tat	gtc	ttg	gag	gat	gag	1920
Cys	Phe	Gln	Glu	Phe	Phe	Ala	Ala	Met	Ser	Tyr	Val	Leu	Glu	Asp	Glu	
625					630					635					640	
aag	ggg	aga	ggt	aaa	cat	tct	aat	tgc	atc	ata	gat	ttg	gaa	aag	acg	1968
Lys	Gly	Arg	Gly	Lys	His	Ser	Asn	Cys	Ile	Ile	Asp	Leu	Glu	Lys	Thr	
				645					650					655		
cta	gaa	gca	tat	gga	ata	cat	ggc	ctg	ttt	ggg	gca	tca	acc	aca	cgt	2016
Leu	Glu	Ala	Tyr	Gly	Ile	His	Gly	Leu	Phe	Gly	Ala	Ser	Thr	Thr	Arg	
			660					665					670			
ttc	cta	ttg	ggc	ctg	tta	agt	gat	gag	ggg	gag	aga	gag	atg	gag	aac	2064
Phe	Leu	Leu	Gly	Leu	Leu	Ser	Asp	Glu	Gly	Glu	Arg	Glu	Met	Glu	Asn	
		675					680					685				
atc	ttt	cac	tgc	cgg	ctg	tct	cag	ggg	agg	aac	ctg	atg	cag	tgg	gtc	2112
Ile	Phe	His	Cys	Arg	Leu	Ser	Gln	Gly	Arg	Asn	Leu	Met	Gln	Trp	Val	
	690					695					700					
cca	tcc	ctc	cac	ctc	ct c	cta	cac	CCP	cac	t ct	cta	nan	tcc	ctc	cac	2160
-		_	-	-	-	_	_									2100
Pro	ser	ьeu	GIN	ьeu	ьeu	ьеи	GTU	rro	птѕ	ser	ьeu	GIU	ser	Leu	UTS	

705 710 715 720

tgc ttg tac gag act cgg aac aaa acg ttc ctg aca caa gtg atg gcc 2208

Cys Leu Tyr Glu Thr Arg Asn Lys Thr Phe Leu Thr Gln Val Met Ala

725 730 735

cat ttc gaa gaa atg ggc atg tgt gta gaa aca gac atg gag ctc tta 2256

His Phe Glu Glu Met Gly Met Cys Val Glu Thr Asp Met Glu Leu Leu

740 745 750

gtg tgc act ttc tgc att aaa ttc agc cgc cac gtg aag aag ctt cag 2304

Val Cys Thr Phe Cys Ile Lys Phe Ser Arg His Val Lys Lys Leu Gln

755 760 765

ctg att gag ggc agg cag cac aga tca aca tgg agc ccc acc atg gta 2352

Leu Ile Glu Gly Arg Gln His Arg Ser Thr Trp Ser Pro Thr Met Val

770 775 780

gtc ctg ttc agg tgg gtc cca gtc aca gat gcc tat tgg cag att ctc 2400

Val Leu Phe Arg Trp Val Pro Val Thr Asp Ala Tyr Trp Gln Ile Leu

785 790 795 800

ttc tcc gtc ctc aag gtc acc aga aac ctg aag gag ctg gac cta agt 2448

Phe Ser Val Leu Lys Val Thr Arg Asn Leu Lys Glu Leu Asp Leu Ser

805 810 815

gga aac tcg ctg agc cac tct gca gtg aag agt ctt tgt aag acc ctg 2496

Gly Asn Ser Leu Ser His Ser Ala Val Lys Ser Leu Cys Lys Thr Leu

820 825 830

aga	cgc	cct	cgc	tgc	ctc	ctg	gag	acc	ctg	cgg	ttg	gct	ggc	tgt	ggc	2544
Arg	Arg	Pro	Arg	Cys	Leu	Leu	Glu	Thr	Leu	Arg	Leu	Ala	Gly	Cys	Gly	
		835					840					845				
ctc	aca	gct	gag	gac	tgc	aag	gac	ctt	gcc	ttt	ggg	ctg	aga	gcc	aac	2592
Leu	Thr	Ala	Glu	Asp	Cys	Lys	Asp	Leu	Ala	Phe	Gly	Leu	Arg	Ala	Asn	
	850					855					860					
cag	acc	ctg	acc	gag	ctg	gac	ctg	agc	ttc	aat	gtg	ctc	acg	gat	gct	2640
Gln	Thr	Leu	Thr	Glu	Leu	Asp	Leu	Ser	Phe	Asn	Val	Leu	Thr	Asp	Ala	
865					870					875					880	
gga	gcc	aaa	cac	ctt	tgc	cag	aga	ctg	aga	cag	ccg	agc	tgc	aag	cta	2688
Gly	Ala	Lys	His	Leu	Cys	Gln	Arg	Leu	Arg	Gln	Pro	Ser	Cys	Lys	Leu	
				885					890					895		
cag	cga	ctg	cag	ctg	gtc	agc	tgt	ggc	ctc	acg	tct	gac	tgc	tgc	cag	2736
Gln	Arg	Leu	Gln	Leu	Val	Ser	Cys	Gly	Leu	Thr	Ser	Asp	Cys	Cys	Gln	
			900					905					910			
gac	ctg	gcc	tct	gtg	ctt	agt	gcc	agc	ccc	agc	ctg	aag	gag	cta	gac	2784
Asp	Leu	Ala	Ser	Val	Leu	Ser	Ala	Ser	Pro	Ser	Leu	Lys	Glu	Leu	Asp	
		915					920					925				
ctg	cag	cag	aac	aac	ctg	gat	gac	gtt	ggc	gtg	cga	ctg	ctc	tgt	gag	2832
Leu	Gln	Gln	Asn	Asn	Ļeu	Asp	Asp	Val	Gly	Val	Arg	Leu	Leu	Cys	Glu	
	930					935					940					

ggg ctc agg cat	cct gcc tgc aa	a ctc ata cgc c	ctg ggg ctg gac cag 2880
Gly Leu Arg His	s Pro Ala Cys Ly	s Leu Ile Arg I	Leu Gly Leu Asp Gln
945	950	955	960
aca act ctg agt	gat gag atg ag	gg cag gaa ctg a	agg gcc ctg gag cag 2928
Thr Thr Leu Ser	Asp Glu Met An	g Gln Glu Leu <i>F</i>	Arg Ala Leu Glu Gln
	965	970	975
gag aaa cct cag	g ctg ctc atc tt	c agc aga cgg a	aaa cca agt gtg atg 2976
Glu Lys Pro Glr	n Leu Leu Ile Ph	ne Ser Arg Arg I	Lys Pro Ser Val Met
980	)	985	990
acc cct act gag	g ggc ctg gat ac	cg gga gag atg a	agt aat agc aca tcc 3024
Thr Pro Thr Glu	ı Gly Leu Asp Th	nr Gly Glu Met S	Ser Asn Ser Thr Ser
995	100	00	1005
tca ctc aag cgg	g cag aga ctc go	ga tca gag agg g	gcg gct tcc cat gtt 3072
Ser Leu Lys Arc	g Gln Arg Leu G	y Ser Glu Arg A	Ala Ala Ser His Val
1010	1015	10	020
gct cag gct aat	t ctc aaa ctc ct	ig gac gtg agc a	aag atc ttc cca att 3120
Ala Gln Ala Asr	n Leu Lys Leu Le	eu Asp Val Ser I	Lys Ile Phe Pro Ile
1025	1030	1035	1040
gct gag att gca	a gag gaa agc to	cc cca gag gta g	gta ccg gtg gaa ctc 3168
Ala Glu Ile Ala	a Glu Glu Ser Se	er Pro Glu Val V	Val Pro Val Glu Leu
	1045	1050	• 1055

ttg tgd	gtg	cct	tct	cct	gcc	tct	caa	ggg	gac	ctg	cat	acg	aag	cct	3216
Leu Cys	: Val	Pro	Ser	Pro	Ala	Ser	Gln	Gly	Asp	Leu	His	Thr	Lys	Pro	
		1060				-	1065				-	L070			
ttg ggg	, act	gac	gat	gac	ttt	ctg	ggg	cct	gaa	gga	aat	gtg	gat	gtt	3264
Leu Gly	Thr	Asp	Asp	Asp	Phe	Leu	Gly	Pro	Glu	Gly	Asn	Val	Asp	Val	
	1075				1	1080				1	1085				
gag tto	, att	gat	aag	agc	aca	aac	aga	tac	agc	gtt	tgg	ttc	ccc	act	3312
Glu Let	ılle	Asp	Lys	Ser	Thr	Asn	Arg	Tyr	Ser	Val	Trp	Phe	Pro	Thr	
1090	) [.]			-	1095				-	1100					
			•												
gct ggd	tgg	tat	ctg	tgg	tca	gcc	aca	ggc	ctc	ggc	ttc	ctg	gta	agg	3360
Ala Gly	7 Trp	Tyr	Leu	Trp	Ser	Ala	Thr	Gly	Leu	Gly	Phe	Leu	Val	Arg	
1105				1110					1115				-	1120	
gat gad	g gtc	aca	gtg	acg	att	gcg	ttt	ggt	tcc	tgg	agt	cag	cac	ctg	3408
Asp Gl	ı Val	Thr	Val	Thr	Ile	Ala	Phe	Gly	Ser	Trp	Ser	Gln	His	Leu	
		:	1125					1130				:	1135		
gcc ct	g gac	ctg	cag	cac	cat	gaa	cag	tgg	ctg	gtg	ggc	ggc	ccc	ttg	3456
Ala Le	ı Asp	Leu	Gln	His	His	Glu	Gln	Trp	Leu	Val	Gly	Gly	Pro	Leu	
		1140					1145					1150			
ttt ga	gtc	act	gca	gag	сса	gag	gag	gct	gtc	gcc	gaa	atc	cac	ctc	3504
Phe As	o Val	Thr	Ala	Glu	Pro	Glu	Glu	Ala	Val	Ala	Glu	Ile	His	Leu	
	1155					1160					1165				

ccc cac ttc atc	tcc ctc caa	ggt gag gtg	gac gtc tcc	tgg ttt ctc	3552
Pro His Phe Ile	Ser Leu Gln	Gly Glu Val	Asp Val Ser	Trp Phe Leu	
1170	1175		1180		
gtt gcc cat ttt	aag aat gaa	ggg atg gtc	ctg gag cat	cca gcc cgg	3600
Val Ala His Phe	Lys Asn Glu	Gly Met Val	Leu Glu His	Pro Ala Arg	
1185	1190	1	.195	1200	
gtg gag cct ttc	tat gct gtc	ctg gaa agc	ccc agc ttc	tct ctg atg	3648
Val Glu Pro Phe	Tyr Ala Val	Leu Glu Ser	Pro Ser Phe	Ser Leu Met	
	1205	1210		1215	
ggc atc ctg ctg	cgg atc gcc	agt ggg act	cgc ctc tcc	atc ccc atc	3696
Gly Ile Leu Leu	Arg Ile Ala	Ser Gly Thr	Arg Leu Ser	Ile Pro Ile	
1220		1225	1	230	
act tcc aac aca	ttg atc tat	tat cac ccc	cac ccc gaa	gat att aag	3744
act tcc aac aca					3744
	Leu Ile Tyr				3744
Thr Ser Asn Thr	Leu Ile Tyr	Tyr His Pro	His Pro Glu		3744
Thr Ser Asn Thr	Leu Ile Tyr	Tyr His Pro	His Pro Glu	Asp Ile Lys	3744 3792
Thr Ser Asn Thr	Leu Ile Tyr	Tyr His Pro 1240 agc gac gcc	His Pro Glu 1245 ttg cta aca	Asp Ile Lys	
Thr Ser Asn Thr 1235 ttc cac ttg tac	Leu Ile Tyr	Tyr His Pro 1240  agc gac gcc Ser Asp Ala	His Pro Glu 1245 ttg cta aca	Asp Ile Lys	
Thr Ser Asn Thr 1235  ttc cac ttg tac Phe His Leu Tyr	Leu Ile Tyr	Tyr His Pro 1240  agc gac gcc Ser Asp Ala	His Pro Glu  1245  ttg cta aca  Leu Leu Thr	Asp Ile Lys	
Thr Ser Asn Thr 1235  ttc cac ttg tac Phe His Leu Tyr	Leu Ile Tyr	Tyr His Pro 1240  agc gac gcc Ser Asp Ala	His Pro Glu  1245  ttg cta aca  Leu Leu Thr  1260	Asp Ile Lys aag gcg ata Lys Ala Ile	
Thr Ser Asn Thr 1235  ttc cac ttg tac Phe His Leu Tyr 1250	Leu Ile Tyr  ctt gtc ccc  Leu Val Pro  1255	Tyr His Pro 1240  agc gac gcc Ser Asp Ala  cat ggt gtg	His Pro Glu  1245  ttg cta aca  Leu Leu Thr  1260  cgc ctg cag	Asp Ile Lys  aag gcg ata  Lys Ala Ile  act tcg ccc	3792
Thr Ser Asn Thr  1235  ttc cac ttg tac  Phe His Leu Tyr  1250  gat gat gag gaa	Leu Ile Tyr  ctt gtc ccc  Leu Val Pro  1255	Tyr His Pro 1240  agc gac gcc Ser Asp Ala  cat ggt gtg His Gly Val	His Pro Glu  1245  ttg cta aca  Leu Leu Thr  1260  cgc ctg cag	Asp Ile Lys  aag gcg ata  Lys Ala Ile  act tcg ccc	3792
Thr Ser Asn Thr  1235  ttc cac ttg tac  Phe His Leu Tyr  1250  gat gat gag gaa  Asp Asp Glu Glu	Leu Ile Tyr  ctt gtc ccc  Leu Val Pro  1255  gat cgc ttc  Asp Arg Phe	Tyr His Pro 1240  agc gac gcc Ser Asp Ala  cat ggt gtg His Gly Val	His Pro Glu  1245  ttg cta aca  Leu Leu Thr  1260  cgc ctg cag  Arg Leu Gln	Asp Ile Lys  aag gcg ata  Lys Ala Ile  act tcg ccc  Thr Ser Pro	3792

Pro	Met	Glu	Pro	Leu	Asn	Phe	Gly	Ser	Ser	Tyr	Ile	Val	Ser	Asn	Ser	
			1	1285				-	L290				:	1295		
gct	aac	ctg	aaa	gta	atg	ccc	aag	gag	ttg	aaa	ttg	tcc	tac	agg	agc	3936
Ala	Asn	Leu	Lys	Val	Met	Pro	Lys	Glu	Leu	Lys	Leu	Ser	Tyr	Arg	Ser	
		1	L300				-	1305				1	1310			
cct	gga	gaa	att	cag	cac	ttc	tca	aaa	ttc	tat	gct	ggg	cag	atg	aag	3984
Pro	Gly	Glu	Ile	Gln	His	Phe	Ser	Lys	Phe	Tyr	Ala	Gly	Gln	Met	Lys	
	-	1315				-	1320				-	L325				
gaa	ccc	att	caa	ctt	gag	att	act	gaa	aaa	aga	cat	ggg	act	ttg	gtg	4032
Glu	Pro	Ile	Gln	Leu	Glu	Ile	Thr	Glu	Lys	Arg	His	Gly	Thr	Leu	Val	
1	L330				1	1335				-	1340					
tgg	gat	act	gag	gtg	aag	сса	gtg	gat	ctc	cag	ctt	gta	gct	gca	tca	4080
Trp	Asp	Thr	Glu	Val	Lys	Pro	Val	Asp	Leu	Gln	Leu	Val	Ala	Ala	Ser	
1345	5			:	1350				-	1355					1360	
gcc	cct	cct	cct	ttc	tca	ggt	gca	gcc	ttt	gtg	aag	gag	aac	cac	cgg	4128
Ala	Pro	Pro	Pro	Phe	Ser	Gly	Ala	Ala	Phe	Val	Lys	Glu	Asn	His	Árg	
			-	1365				:	1370				;	1375		
caa	ctc	caa	gcc	agg	atg	ggg	gac	ctg	aaa	ggg	gtg	ctc	gat	gat	ctc	4176
Gln	Leu	Gln	Ala	Arg	Met	Gly	Asp	Leu	Lys	Gly	Val	Leu	Asp	Asp	Leu	
			1380					1385				-	1390			
cag	gac	aat	gag	gtt	ctt	act	gag	aat	gag	aag	gag	ctg	gtg	gag	cag	4224

Gln Asp Asn Glu Val Leu Thr Glu Asn Glu Lys Glu Leu Val Glu Gln
1395 1400 1405

gaa aag aca cgg cag agc aag aat gag gcc ttg ctg agc atg gtg gag 4272
Glu Lys Thr Arg Gln Ser Lys Asn Glu Ala Leu Leu Ser Met Val Glu
1410
1415
1420

aag aaa ggg gac ctg gcc ctg gac gtg ctc ttc aga agc att agt gaa 4320 Lys Lys Gly Asp Leu Ala Leu Asp Val Leu Phe Arg Ser Ile Ser Glu 1425 1430 1435 1440

agg gac cct tac ctc gtg tcc tat ctt aga cag cag aat ttg taa 4365

Arg Asp Pro Tyr Leu Val Ser Tyr Leu Arg Gln Gln Asn Leu

1445

1450

aatgagtcag ttaggtagtc tggaagaga aatccagcgt tctcattgga aatggataaa 4425
cagaaatgtg atcattgatt tcagtgttca agacagaaga agactgggta acatctatca 4485
cacaggcttt caggacagac ttgtaacctg gcatgtacct attgactgta tcctcatgca 4545
ttttcctcaa g

<210> 10

<211> 1454

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic Construct <400> 10 Met Ala Gly Gly Ala Trp Gly Arg Leu Ala Cys Tyr Leu Glu Phe Leu Lys Lys Glu Glu Leu Lys Glu Phe Gln Leu Leu Leu Ala Asn Lys Ala His Ser Arg Ser Ser Ser Gly Glu Thr Pro Ala Gln Pro Glu Lys Thr Ser Gly Met Glu Val Ala Ser Tyr Leu Val Ala Gln Tyr Gly Glu Gln Arg Ala Trp Asp Leu Ala Leu His Thr Trp Glu Gln Met Gly Leu Arg Ser Leu Cys Ala Gln Ala Gln Glu Gly Ala Gly His Ser Pro Ser Phe Pro Tyr Ser Pro Ser Glu Pro His Leu Gly Ser Pro Ser Gln Pro Thr Ser Thr Ala Val Leu Met Pro Trp Ile His Glu Leu Pro Ala Gly Cys Thr Gln Gly Ser Glu Arg Arg Val Leu Arg Gln Leu Pro Asp Thr Ser 

Gly Arg Arg Trp Arg Glu Ile Ser Ala Ser Leu Leu Tyr Gln Ala Leu Pro Ser Ser Pro Asp His Glu Ser Pro Ser Gln Glu Ser Pro Asn Ala Pro Thr Ser Thr Ala Val Leu Gly Ser Trp Gly Ser Pro Pro Gln Pro Ser Leu Ala Pro Arg Glu Gln Glu Ala Pro Gly Thr Gln Trp Pro Leu Asp Glu Thr Ser Gly Ile Tyr Tyr Thr Glu Ile Arg Glu Arg Glu Arg Glu Lys Ser Glu Lys Gly Arg Pro Pro Trp Ala Ala Val Val Gly Thr 

Pro Pro Gln Ala His Thr Ser Leu Gln Pro His His Pro Trp Glu

Pro Ser Val Arg Glu Ser Leu Cys Ser Thr Trp Pro Trp Lys Asn Glu
260 265 270

Asp Phe Asn Gln Lys Phe Thr Gln Leu Leu Leu Gln Arg Pro His
275 280 285

Pro Arg Ser Gln Asp Pro Leu Val Lys Arg Ser Trp Pro Asp Tyr Val

290 295 300

Glu Glu Asn Arg Gly His Leu Ile Glu Ile Arg Asp Leu Phe Gly Pro 305 310 315 320

Gly Leu Asp Thr Gln Glu Pro Arg Ile Val Ile Leu Gln Gly Ala Ala
325 330 335

Gly Ile Gly Lys Ser Thr Leu Ala Arg Gln Val Lys Glu Ala Trp Gly

340 345 350

Arg Gly Gln Leu Tyr Gly Asp Arg Phe Gln His Val Phe Tyr Phe Ser 355 360 365

Cys Arg Glu Leu Ala Gln Ser Lys Val Val Ser Leu Ala Glu Leu Ile 370 375 380

Gly Lys Asp Gly Thr Ala Thr Pro Ala Pro Ile Arg Gln Ile Leu Ser 385 390 395 400

Arg Pro Glu Arg Leu Leu Phe Ile Leu Asp Gly Val Asp Glu Pro Gly
405 410 415

Trp Val Leu Gln Glu Pro Ser Ser Glu Leu Cys Leu His Trp Ser Gln
420 425 430

Pro Gln Pro Ala Asp Ala Leu Leu Gly Ser Leu Leu Gly Lys Thr Ile
435
440
445

Leu Pro Glu Ala Ser Phe Leu Ile Thr Ala Arg Thr Thr Ala Leu Gln
450 455 460

Asn Leu Ile Pro Ser Leu Glu Gln Ala Arg Trp Val Glu Val Leu Gly
465 470 475 480

Phe Ser Glu Ser Ser Arg Lys Glu Tyr Phe Tyr Arg Tyr Phe Thr Asp
485 490 495

Glu Arg Gln Ala Ile Arg Ala Phe Arg Leu Val Lys Ser Asn Lys Glu  $$\zeta$$  500 \$ 505 \$ 510

Leu Trp Ala Leu Cys Leu Val Pro Trp Val Ser Trp Leu Ala Cys Thr
515 520 525

Cys Leu Met Gln Gln Met Lys Arg Lys Glu Lys Leu Thr Leu Thr Ser 530 535 540

Lys Thr Thr Thr Thr Leu Cys Leu His Tyr Leu Ala Gln Ala Leu Gln 545 550 560

Ala Gln Pro Leu Gly Pro Gln Leu Arg Asp Leu Cys Ser Leu Ala Ala
565 570 575

Glu Gly Ile Trp Gln Lys Lys Thr Leu Phe Ser Pro Asp Asp Leu Arg
580 585 590

Lys His Gly Leu Asp Gly Ala Ile Ile Ser Thr Phe Leu Lys Met Gly

595 600 605

Ile Leu Gln Glu His Pro Ile Pro Leu Ser Tyr Ser Phe Ile His Leu
610 620

Cys Phe Gln Glu Phe Phe Ala Ala Met Ser Tyr Val Leu Glu Asp Glu 625 630 635 640

Lys Gly Arg Gly Lys His Ser Asn Cys Ile Ile Asp Leu Glu Lys Thr
645 650 655

Leu Glu Ala Tyr Gly Ile His Gly Leu Phe Gly Ala Ser Thr Thr Arg
660 665 670

Phe Leu Leu Gly Leu Leu Ser Asp Glu Gly Glu Arg Glu Met Glu Asn 675 680 685

Ile Phe His Cys Arg Leu Ser Gln Gly Arg Asn Leu Met Gln Trp Val

Pro Ser Leu Gln Leu Leu Gln Pro His Ser Leu Glu Ser Leu His
705 710 715 720

Cys Leu Tyr Glu Thr Arg Asn Lys Thr Phe Leu Thr Gln Val Met Ala
725 730 735

His Phe Glu Glu Met Gly Met Cys Val Glu Thr Asp Met Glu Leu Leu
740 745 750

Val Cys Thr Phe Cys Ile Lys Phe Ser Arg His Val Lys Lys Leu Gln
755 760 765

Leu Ile Glu Gly Arg Gln His Arg Ser Thr Trp Ser Pro Thr Met Val
770 775 . 780

Val Leu Phe Arg Trp Val Pro Val Thr Asp Ala Tyr Trp Gln Ile Leu
785 790 795 800

Phe Ser Val Leu Lys Val Thr Arg Asn Leu Lys Glu Leu Asp Leu Ser 805 810 815

Gly Asn Ser Leu Ser His Ser Ala Val Lys Ser Leu Cys Lys Thr Leu 820 825 830

Arg Arg Pro Arg Cys Leu Leu Glu Thr Leu Arg Leu Ala Gly Cys Gly
835 840 845

Leu Thr Ala Glu Asp Cys Lys Asp Leu Ala Phe Gly Leu Arg Ala Asn 850 855 860

Gln Thr Leu Thr Glu Leu Asp Leu Ser Phe Asn Val Leu Thr Asp Ala 865 870 875 . 880

Gly Ala Lys His Leu Cys Gln Arg Leu Arg Gln Pro Ser Cys Lys Leu 885 890 895

Gln Arg Leu Gln Leu Val Ser Cys Gly Leu Thr Ser Asp Cys Cys Gln

900 905 910

Asp Leu Ala Ser Val Leu Ser Ala Ser Pro Ser Leu Lys Glu Leu Asp
915 920 925

Leu Gln Gln Asn Asn Leu Asp Asp Val Gly Val Arg Leu Leu Cys Glu
930 935 940

Gly Leu Arg His Pro Ala Cys Lys Leu Ile Arg Leu Gly Leu Asp Gln 945 950 955 960

Thr Thr Leu Ser Asp Glu Met Arg Gln Glu Leu Arg Ala Leu Glu Gln
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Glu Lys Pro Gln Leu Leu Ile Phe Ser Arg Arg Lys Pro Ser Val Met
980 985 990

Thr Pro Thr Glu Gly Leu Asp Thr Gly Glu Met Ser Asn Ser Thr Ser
995 1000 1005

Ser Leu Lys Arg Gln Arg Leu Gly Ser Glu Arg Ala Ala Ser His Val
1010 1015 1020

Ala Gln Ala Asn Leu Lys Leu Leu Asp Val Ser Lys Ile Phe Pro Ile 1025 1030 1035 1040

Ala Glu Ile Ala Glu Glu Ser Ser Pro Glu Val Val Pro Val Glu Leu
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Leu Cys Val Pro Ser Pro Ala Ser Gln Gly Asp Leu His Thr Lys Pro Leu Gly Thr Asp Asp Phe Leu Gly Pro Glu Gly Asn Val Asp Val Glu Leu Ile Asp Lys Ser Thr Asn Arg Tyr Ser Val Trp Phe Pro Thr Ala Gly Trp Tyr Leu Trp Ser Ala Thr Gly Leu Gly Phe Leu Val Arg Asp Glu Val Thr Val Thr Ile Ala Phe Gly Ser Trp Ser Gln His Leu Ala Leu Asp Leu Gln His His Glu Gln Trp Leu Val Gly Gly Pro Leu Phe Asp Val Thr Ala Glu Pro Glu Glu Ala Val Ala Glu Ile His Leu Pro His Phe Ile Ser Leu Gln Gly Glu Val Asp Val Ser Trp Phe Leu 

Val Glu Pro Phe Tyr Ala Val Leu Glu Ser Pro Ser Phe Ser Leu Met

Val Ala His Phe Lys Asn Glu Gly Met Val Leu Glu His Pro Ala Arg

1205 1210 1215

Gly Ile Leu Leu Arg Ile Ala Ser Gly Thr Arg Leu Ser Ile Pro Ile
1220 1225 1230

Thr Ser Asn Thr Leu Ile Tyr Tyr His Pro His Pro Glu Asp Ile Lys

1235 1240 1245

Phe His Leu Tyr Leu Val Pro Ser Asp Ala Leu Leu Thr Lys Ala Ile
1250 1255 1260

Asp Asp Glu Glu Asp Arg Phe His Gly Val Arg Leu Gln Thr Ser Pro

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Pro Met Glu Pro Leu Asn Phe Gly Ser Ser Tyr Ile Val Ser Asn Ser

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Ala Asn Leu Lys Val Met Pro Lys Glu Leu Lys Leu Ser Tyr Arg Ser
1300 1305 1310

Pro Gly Glu Ile Gln His Phe Ser Lys Phe Tyr Ala Gly Gln Met Lys
1315 1320 1325

Glu Pro Ile Gln Leu Glu Ile Thr Glu Lys Arg His Gly Thr Leu Val 1330 1335 1340

Trp Asp Thr Glu Val Lys Pro Val Asp Leu Gln Leu Val Ala Ala Ser 1345 1350 1355 1360 Ala Pro Pro Pro Phe Ser Gly Ala Ala Phe Val Lys Glu Asn His Arg
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Gln Leu Gln Ala Arg Met Gly Asp Leu Lys Gly Val Leu Asp Asp Leu
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Gln Asp Asn Glu Val Leu Thr Glu Asn Glu Lys Glu Leu Val Glu Gln
1395 1400 1405

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Arg Asp Pro Tyr Leu Val Ser Tyr Leu Arg Gln Gln Asn Leu

1445 1450

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<213> Artificial Sequence

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	Construct				

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1				5					10					15		
aag	aag	gag	gag	ctg	aag	gag	ttc	cag	ctt	ctg	ctc	gcc	aat	aaa	gcg	96
Lys	Lys	Glu	Glu	Leu	Lys	Glu	Phe	Gln	Leu	Leu	Leu	Ala	Asn	Lys	Ala	
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cac	tcc	agg	agc	tct	tcg	ggt	gag	aca	ccc	gct	cag	сса	gag	aag	acg	144
His	Ser	Arg	Ser	Ser	Ser	Gly	Glu	Thr	Pro	Ala	Gln	Pro	Glu	Lys	Thr	
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agt	ggc	atg	gag	gtg	gcc	tcg	tac	ctg	gtg	gct	cag	tat	ggg	gag	cag	192
Ser	Gly	Met	Glu	Val	Ala	Ser	Tyr	Leu	Val	Ala	Gln	Tyr	Gly	Glu	Gln	
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cgg gcc tgg gac cta gcc ctc cat acc tgg gag cag atg ggg ctg agg 240

Arg Ala Trp Asp Leu Ala Leu His Thr Trp Glu Gln Met Gly Leu Arg

65 70 75 80

tca ctg tgc gcc caa gcc cag gaa ggg gca ggc cac tct ccc tca ttc 288

Ser Leu Cys Ala Gln Ala Gln Glu Gly Ala Gly His Ser Pro Ser Phe

85 90 95

Pro	Tyr	Ser	Pro	Ser	Glu	Pro	His	Leu	Gly	Ser	Pro	Ser	Gln	Pro	Thr	
			100					105					110			
tcc	acc	gca	gtg	cta	atg	ccc	tgg	atc	cat	gaa	ttg	ccg	gcg	ggg	tgc	384
Ser	Thr	Ala	Val	Leu	Met	Pro	Trp	Ile	His	Glu	Leu	Pro	Ala	Gly	Cys	
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acc	cag	ggc	tca	gag	aga	agg	gtt	ttg	aga	cag	ctg	cct	gac	aca	tct	432
Thr	Gln	Gly	Ser	Glu	Arg	Arg	Val	Leu	Arg	Gln	Leu	Pro	Asp	Thr	Ser	
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Gly	Arg	Arg	Trp	Arg	Glu	Ile	Ser	Ala	Ser	Leu	Leu	Tyr	Gln	Ala	Leu	
145					150					155					160	
сса	agc	tcc	сса	gac	cat	gag	tct	сса	agc	cag	gag	tca	ccc	aac	gcc	528
Pro	Ser	Ser	Pro	Asp	His	Glu	Ser	Pro	Ser	Gln	Glu	Ser	Pro	Asn	Ala	
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ccc	aca	tcc	aca	gca	gtg	ctg	ggg	agc	tgg	gga	tcc	сса	cct	cag	ccc	576
Pro	Thr	Ser	Thr	Ala	Val	Leu	Gly	Ser	Trp	Gly	Ser	Pro	Pro	Gln	Pro	
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agc	cta	gca	ccc	aga	gag	cag	gag	gct	cct	ggg	acc	caa	tgg	cct	ctg	624
													tgg Trp			624

ccc tac age cca agt gaa ccc cac etg ggg tet ecc age caa ecc acc 336

gat	gaa	acg	tca	gga	att	tac	tac	aca	gaa	atc	aga	gaa	aga	gag	aga	672
Asp	Glu	Thr	Ser	Gly	Ile	Tyr	Tyr	Thr	Glu	Ile	Arg	Glu	Arg	Glu	Arg	
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gag	aaa	tca	gag	aaa	ggc	agg	ccc	cca	tgg	gca	gcg	gtg	gta	gga	acg	720
Glu	Lys	Ser	Glu	Lys	Gly	Arg	Pro	Pro	Trp	Ala	Ala	Val	Val	Gly	Thr	
225					230					235					240	
ccc	сса	cag	gcg	cac	acc	agc	cta	cag	ccc	cac	cac	cac	сса	tgg	gag	768
Pro	Pro	Gln	Ala	His	Thr	Ser	Leu	Gln	Pro	His	His	His	Pro	Trp	Glu	
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cct	tct	gtg	aga	gag	agc	ctc	tgt	tcc	aca	tgg	ccc	tgg	aaa	aat	gag	816
Pro	Ser	Val	Arg	Glu	Ser	Leu	Cys	Ser	Thr	Trp	Pro	Trp	Lys	Asn	Glu	
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gat	ttt	aac	caa	aaa	ttc	aca	cag	ctg	cta	ctt	cta	caa	aga	cct	cac	864
Asp	Phe	Asn	Gln	Lys	Phe	Thr	Gln	Leu	Leu	Leu	Leu	Gln	Arg	Pro	His	
		275					280					285				
ccc	aga	agc	caa	gat	ccc	ctg	gtc	aag	aga	agc	tgg	cct	gat	tat	gtg	912
Pro	Arg	Ser	Gln	Asp	Pro	Leu	Val	Lys	Arg	Ser	Trp	Pro	Asp	Tyr	Val	
	290					295					300					
gag	gag	aat	cga	gga	cat	tta	att	gag	atc	aga	gac	tta	ttt	ggc	сса	960
Glu	Glu	Asn	Arg	Gly	His	Leu	Ile	Glu	Ile	Arg	Asp	Leu	Phe	Gly	Pro	
305					310					315					320	

ggc	ctg	gat	acc	caa	gaa	cct	cgc	ata	gtc	ata	ctg	cag	ggg	gct	gct	1008
Gly	Leu	Asp	Thr	Gln	Glu	Pro	Arg	Ile	Val	Ile	Leu	Gln	Gly	Ala	Ala	
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gga	att	ggg	aag	tca	aca	ctg	gcc	agg	cag	gtg	aag	gaa	gcc	tgg	ggg	1056
Gly	Ile	Gly	Lys	Ser	Thr	Leu	Ala	Arg	Gln	Val	Lys	Glu	Ala	Trp	Gly	
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Arg	Gly	Gln	Leu	Tyr	Gly	Asp	Arg	Phe	Gln	His	Val	Phe	Tyr	Phe	Ser	
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Cys	Arg	Glu	Leu	Ala	Gln	Ser	Lys	Val	Val	Ser	Leu	Ala	Glu	Leu	Ile	
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Gly	Lys	Asp	Gly	Thr	Ala	Thr	Pro	Ala	Pro	Ile	Arg	Gln	Ile	Leu	Ser	
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Arg	Pro	Glu	Arg	Leu	Leu	Phe	Ile	Leu	Asp	Gly	Val	Asp	Glu	Pro	Gly	
				405					410					415		
tgg	gtc	ttg	cag	gag	ccg	agt	tct	gag	ctc	tgt	ctg	cac	tgg	agc	cag	1296
Trp	Val	Leu	Gln	Glu	Pro	Ser	Ser	Glu	Leu	Cys	Leu	His	Trp	Ser	Gln	
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сса	cag	ccg	gcg	gat	gca	ctg	ctg	ggc	agt	ttg	ctg	ggg	aaa	act	ata	1344

Pro Gln Pro Ala	Asp Ala Leu	Leu Gly Ser	Leu Leu Gly Lys Th	r Ile
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ctt ccc gag gca	tcc ttc ctg	atc acg gct	cgg acc aca gct ct	g cag 1392
Leu Pro Glu Ala	Ser Phe Leu	Ile Thr Ala	Arg Thr Thr Ala Le	eu Gln
450	455		460	
aac ctc att cct	tct ttg gag	cag gca cgt	tgg gta gag gtc ct	g ggg 1440
Asn Leu Ile Pro	Ser Leu Glu	Gln Ala Arg	Trp Val Glu Val Le	u Gly
465	470		475	480
ttc tct gag tcc	agc agg aag	gaa tat ttc	tac aga tat ttc ac	a gat 1488
Phe Ser Glu Ser	Ser Arg Lys	Glu Tyr Phe	Tyr Arg Tyr Phe Th	r Asp
	485	490	4 9	5
gaa agg caa gca	att aga gcc	ttt agg ttg	gtc aaa tca aac aa	a gag 1536
Glu Arg Gln Ala	Ile Arg Ala	Phe Arg Leu	Val Lys Ser Asn Ly	rs Glu
500		505	510	
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Leu Trp Ala Leu	Cys Leu Val	Pro Trp Val	Ser Trp Leu Ala Cy	s Thr
515		520	525	
tgc ctg atg cag	cag atg aag	cgg aag gaa	aaa ctc aca ctg ac	t tcc 1632
Cys Leu Met Gln	Gln Met Lys	Arg Lys Glu	Lys Leu Thr Leu Th	r Ser
530	535		540	
aag acc acc aca	acc ctc tgt	cta cat tac	ctt gcc cag gct ct	c caa 1680

Lys	Thr	Thr	Thr	Thr	Leu	Cys	Leu	His	Tyr	Leu	Ala	Gln	Ala	Leu	Gln	
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Ala	Gln	Pro	Leu	Gly	Pro	Gln	Leu	Arg	Asp	Leu	Cys	Ser	Leu	Ala	Ala	
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gag	ggc	atc	tgg	caa	aaa	aag	acc	ctt	ttc	agt	сса	gat	gac	ctc	agg	1776
Glu	Gly	Ile	Trp	Gln	Lys	Lys	Thr	Leu	Phe	Ser	Pro	Asp	Asp	Leu	Arg	
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Lys	His	Gly	Leu	Asp	Gly	Ala	Ile	Ile	Ser	Thr	Phe	Leu	Lys	Met	Gly	
		595					600					605				
·																
att	ctt	caa	gag	cac	ccc	atc	cct	ctg	agc	tac	agc	ttc	att	cac	ctc	1872
Ile	Leu	Gln	Glu	His	Pro	Ile	Pro	Leu	Ser	Tyr	Ser	Phe	Ile	His	Leu	
	610					615					620					
tgt	ttc	caa	gag	ttc	ttt	gca	gca	atg	tcc	tat	gtc	ttg	gag	gat	gag	1920
Cys	Phe	Gln	Glu	Phe	Phe	Ala	Ala	Met	Ser	Tyr	Val	Leu	Glu	Asp	Glu	
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Lys	Gly	Arg	Gly	Lys	His	Ser	Asn	Cys	Ile	Ile	Asp	Leu	Glu	Lys	Thr	
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cta	gaa	gca	tat	gga	ata	cat	ggc	ctg	ttt	ggg	gca	tca	acc	aca	cgt	2016
Leu	Glu	Ala	Tyr	Gly	Ile	His	Gly	Leu	Phe	Gly	Ala	Ser	Thr	Thr	Arg	

660 665 670

ttc cta ttg	ggc ctg tt	a agt gat	gag ggg	gag aga	gag atg	gag aac	2064
Phe Leu Leu	Gly Leu Le	u Ser Asp	Glu Gly	Glu Arg	Glu Met	Glu Asn	
675		680			685		
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Ile Phe His	Cys Arg Le	u Ser Gln	Gly Arg	Asn Leu	Met Gln	Trp Val	
690		695		700			
ccg tcc ctg	cag ctg ct	g ctg cag	cca cac	tct ctg	gag tcc	ctc cac	2160
Pro Ser Leu	Gln Leu Le	u Leu Gln	Pro His	Ser Leu	Glu Ser	Leu His	
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Cys Leu Tyr	Glu Thr Ar	g Asn Lys	Thr Phe	Leu Thr	Gln Val	Met Ala	
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cat ttc gaa	gaa atg gg	c atg tgt	gta gaa	aca gac	atg gag	ctc tta	2256
His Phe Glu	Glu Met Gl	y Met Cys	Val Glu	Thr Asp	Met Glu	Leu Leu	
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gtg tgc act	ttc tgc at	t aaa tto	agc cgc	cac gtg	aag aag	ctt cag	2304
Val Cys Thr	Phe Cys Il	e Lys Phe	Ser Arg	His Val	Lys Lys	Leu Gln	
755		760	1		765		
ctg att gag	ggc agg ca	g cac aga	tca aca	tgg agc	ccc acc	atg gta	2352
Leu Ile Glu	Gly Arg Gl	n His Arg	Ser Thr	Trp Ser	Pro Thr	Met Val	

770 775 780

							~+~	202	ant.	~~~	tat	taa	Cad	2++	ctc	2400
														att		2400
Val	Leu	Phe	Arg	Trp	Val	Pro	Val	Thr	Asp	Ala	Tyr	Trp	Gln	Ile	Leu	
785					790					795					800	
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Phe	Ser	Val	Leu	Lys	Val	Thr	Arg	Asn	Leu	Lys	Glu	Leu	Asp	Leu	Ser	
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Gly	Asn	Ser	Leu	Ser	His	Ser	Ala	Val	Lys	Ser	Leu	Cys	Lys	Thr	Leu	
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Leu	Thr	Ala	Glu	Asp	Cys	Lys	Asp	Leu	Ala	Phe	Gly	Leu	Arg	Ala	Asn	
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сап	acc	cta	acc	gag	cta	gac	cta	agc	ttc	aat	ata	ctc	acq	gat	act	2640
_		_		_										Asp		
	1111	цец	1111	GIU		АЗР	нец	JCI	1110		Vai	шси	1111	пор	880	
865					870					875					000	
	-													aag		2688
Gly	Ala	Lys	His	Leu	Cys	Gln	Arg	Leu	Arg	Gln	Pro	Ser	Cys	Lys	Leu	
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Gln	Arg	Leu	Gln	Leu	Val	Ser	Cys	Gly	Leu	Thr	Ser	Asp	Cys	Cys	Gln	
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gac	ctg	gcc	tct	gtg	ctt	agt	gcc	agc	ccc	agc	ctg	aag	gag	cta	gac	2784
Asp	Leu	Ala	Ser	Val	Leu	Ser	Ala	Ser	Pro	Ser	Leu	Lys	Glu	Leu	Asp	
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Val	Met	Thr	Pro	Thr	Glu	Gly	Leu	Asp	Thr	Gly	Glu	Met	Ser	Asn	Ser	
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Thr	Ser	Ser	Leu	Lys	Arg	Gln	Arg	Leu	Gly	Ser	Glu	Arg	Ala	Ala	Ser	
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His	Val	Ala	Gln	Ala	Asn	Leu	Lys	Leu	Leu	Asp	Val	Ser	Lys	Ile	Phe	
		995				:	1000					1005				

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Pro	Ile	Ala	Glu	Ile	Ala	Glu	Glu	Ser	Ser	Pro	Glu	Val	Val	Pro	Val	
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Lys	Pro	Leu	Gly	Thr	Asp	Asp	Asp	Phe	Leu	Gly	Pro	Glu	Gly	Asn	Val	
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gat	gtt	gag	ttg	att	gat	aag	agc	aca	aac	aga	tac	agc	gtt	tgg	ttc	3216
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His	Leu	Ala	Leu	Asp	Leu	Gln	His	His	Glu	Gln	Trp	Leu	Val	Gly	Gly	
1105	5				1110					1115					1120	

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Pro Leu Phe Asp V	al Thr Ala	Glu Pro Glu	Glu Ala Val Ala	Glu Ile
11.	25	1130		1135
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cac ctc ccc cac t	tc atc tcc	ctc caa ggt	gag gtg gac gtc	tcc tgg 3456
His Leu Pro His P	he Ile Ser	Leu Gln Gly	Glu Val Asp Val	Ser Trp
1140		1145	1150	
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Phe Leu Val Ala H	is Phe Lys	Asn Glu Gly	Met Val Leu Glu	His Pro
1155	1	160	1165	
gcc cgg gtg gag c	ct ttc tat	gct gtc ctg	gaa agc ccc agc	ttc tct 3552
Ala Arg Val Glu P	ro Phe Tyr .	Ala Val Leu	Glu Ser Pro Ser	Phe Ser
1170	1175		1180	
•				
ctg atg ggc atc c	tg ctg cgg	atc gcc agt	ggg act cgc ctc	tcc atc 3600
Leu Met Gly Ile L	eu Leu Arg	Ile Ala Ser	Gly Thr Arg Leu	Ser Ile
1185	1190	1	1195	1200
			•	
ccc atc act tcc a	ac aca ttg	atc tat tat	cac ccc cac ccc	gaa gat 3648
Pro Ile Thr Ser A	sn Thr Leu	Ile Tyr Tyr	His Pro His Pro	Glu Asp
12	05	1210		1215
•				
att aag ttc cac t	tg tac ctt	gtc ccc agc	gac gcc ttg cta	aca aag 3696
Ile Lys Phe His L	eu Tyr Leu	Val Pro Ser	Asp Ala Leu Leu	Thr Lys
1220		1225	1230	

gcg ata gat gat gag	gaa gat cgc t	tc cat ggt gtg c	gc ctg cag act 3744
Ala Ile Asp Asp Glu	Glu Asp Arg E	Phe His Gly Val A	rg Leu Gln Thr
1235	1240	12	45
•			
tcg ccc cca atg gaa	ccc ctg aac t	tt ggt tcc agt t	at att gtg tct 3792
Ser Pro Pro Met Glu	Pro Leu Asn F	Phe Gly Ser Ser T	yr Ile Val Ser
1250	1255	1260	
aat tot got aac otg	aaa gta atg c	ecc aag gag ttg a	aa ttg tcc tac 3840
Asn Ser Ala Asn Leu	Lys Val Met E	Pro Lys Glu Leu L	ys Leu Ser Tyr
1265	1270	1275	1280
agg agc cct gga gaa	att cag cac t	tc tca aaa ttc t	at gct ggg cag 3888
Arg Ser Pro Gly Glu	Ile Gln His E	Phe Ser Lys Phe T	yr Ala Gly Gln
1285		1290	1295
atg aag gaa ccc att	caa ctt gag a		ga cat ggg act 3936
atg aag gaa ccc att Met Lys Glu Pro Ile		att act gaa aaa a	
	Gln Leu Glu I	att act gaa aaa a	
Met Lys Glu Pro Ile	Gln Leu Glu I	att act gaa aaa a Ile Thr Glu Lys A	rg His Gly Thr
Met Lys Glu Pro Ile	Gln Leu Glu I	att act gaa aaa a Ile Thr Glu Lys A 305	rg His Gly Thr 1310
Met Lys Glu Pro Ile	Gln Leu Glu I 13 gag gtg aag c	att act gaa aaa a [le Thr Glu Lys A 305 cca gtg gat ctc c	rg His Gly Thr 1310 ag ctt gta gct 3984
Met Lys Glu Pro Ile  1300  ttg gtg tgg gat act	Gln Leu Glu I 13 gag gtg aag c	att act gaa aaa a lle Thr Glu Lys A 305 cca gtg gat ctc c Pro Val Asp Leu G	rg His Gly Thr 1310 ag ctt gta gct 3984
Met Lys Glu Pro Ile  1300  ttg gtg tgg gat act Leu Val Trp Asp Thr	Gln Leu Glu I  13  gag gtg aag c Glu Val Lys E	att act gaa aaa a lle Thr Glu Lys A 305 cca gtg gat ctc c Pro Val Asp Leu G	rg His Gly Thr 1310  ag ctt gta gct 3984  ln Leu Val Ala
Met Lys Glu Pro Ile  1300  ttg gtg tgg gat act Leu Val Trp Asp Thr	Gln Leu Glu I  13  gag gtg aag c  Glu Val Lys E  1320	att act gaa aaa a Ele Thr Glu Lys A 305 cca gtg gat ctc c Pro Val Asp Leu G	rg His Gly Thr  1310  ag ctt gta gct 3984  ln Leu Val Ala  25
Met Lys Glu Pro Ile  1300  ttg gtg tgg gat act  Leu Val Trp Asp Thr  1315	Gln Leu Glu I  13  gag gtg aag c  Glu Val Lys E  1320  cct ttc tca g	att act gaa aaa a Ele Thr Glu Lys A 305 cca gtg gat ctc c Pro Val Asp Leu G 13	rg His Gly Thr 1310  ag ctt gta gct 3984  ln Leu Val Ala 25  tg aag gag aac 4032
Met Lys Glu Pro Ile  1300  ttg gtg tgg gat act  Leu Val Trp Asp Thr  1315  gca tca gcc cct cct	Gln Leu Glu I  13  gag gtg aag c  Glu Val Lys E  1320  cct ttc tca g	att act gaa aaa a Ele Thr Glu Lys A 305 cca gtg gat ctc c Pro Val Asp Leu G 13	rg His Gly Thr 1310  ag ctt gta gct 3984  ln Leu Val Ala 25  tg aag gag aac 4032

cac cgg caa ctc caa gcc agg atg ggg gac ctg aaa ggg gtg ctc gat 4080

1110	Arg	Gln	Leu	Gln	Ala	Arg	Met	Gly	Asp	Leu	Lys	Gly	Val	Leu	Asp	
1345	5			. 3	1350				-	1355					1360	
gat	ctc	cag	gac	aat	gag	gtt	ctt	act	gag	aat	gag	aag	gag	ctg	gtg	4128
Asp	Leu	Gln	Asp	Asn	Glu	Val	Leu	Thr	Glu	Asn	Glu	Lys	Glu	Leu	Val	
			-	1365				:	1370					1375		
gag	cag	gaa	aag	aca	cgg	cag	agc	aag	aat	gag	gcc	ttg	ctg	agc	atg	4176
Glu	Gln	Glu	Lys	Thr	Arg	Gln	Ser	Lys	Asn	Glu	Ala	Leu	Leu	Ser	Met	
			1380				-	1385				-	1390			
gtg	gag	aag	aaa	ggg	gac	ctg	gcc	ctg	gac	gtg	ctc	ttc	aga	agc	att	4224
Val	Glu	Lys	Lys	Gly	Asp	Leu	Ala	Leu	Asp	Val	Leu	Phe	Arg	Ser	Ile	
							1400					1405				
		1395				-	1400				•	1403				
	•	1395				•	1400				-					
agt			gac	cct	tac			tcc	tat	ctt			cag	aat	ttg	4272
	gaa	agg				ctc	gtg				aga	cag		aat Asn		4272
Ser	gaa	agg			Tyr	ctc	gtg			Leu	aga	cag				4272
Ser	gaa Glu	agg			Tyr	ctc Leu	gtg			Leu	aga Arg	cag				4272
Ser	gaa Glu 1410	agg Arg	Asp	Pro	Tyr	ctc Leu 1415	gtg Val	Ser	Tyr	Leu	aga Arg 1420	cag Gln	Gln	Asn		
Ser	gaa Glu 1410	agg Arg	Asp	Pro	Tyr	ctc Leu 1415	gtg Val	Ser	Tyr	Leu	aga Arg 1420	cag Gln	Gln	Asn	Leu	
Ser	gaa Glu 1410 aatga	agg Arg	Asp cagtt	Pro tagg	Tyr 1	ctc Leu 1415 cctgg	gtg Val gaaga	Ser a ga	Tyr gaato	Leu	aga Arg 1420 cgt	cag Gln	Gln	Asn ggaaa	Leu	4332
Ser	gaa Glu 1410 aatga	agg Arg	Asp cagtt	Pro tagg	Tyr 1	ctc Leu 1415 cctgg	gtg Val gaaga	Ser a ga	Tyr gaato	Leu	aga Arg 1420 cgt	cag Gln	Gln	Asn ggaaa	Leu atggat	4332
taaa	gaa Glu 1410 aatga	agg Arg	Asp cagti gtgai	Pro taggt	Tyr 1 ta gt	ctc Leu 1415 cctgg	gtg Val gaaga	Ser a gad	Tyr gaato	Leu	aga Arg 1420 cgt:	cag Gln cctca	Gln att	Asn ggaaa gtaa	Leu atggat	4332
taaa	gaa Glu 1410 aatga	agg Arg	Asp cagti gtgai	Pro tagg†	Tyr 1 ta gt	ctc Leu 1415 cctgg	gtg Val gaaga	Ser a gad	Tyr gaato	Leu	aga Arg 1420 cgt:	cag Gln cctca	Gln att	Asn ggaaa gtaa	Leu atggat catcta	4332

<210> 12 <211> 1424 <212> PRT <213> Artificial Sequence <220> <223> Description of Artificial Sequence: Synthetic Construct <400> 12 Met Ala Gly Gly Ala Trp Gly Arg Leu Ala Cys Tyr Leu Glu Phe Leu Lys Lys Glu Glu Leu Lys Glu Phe Gln Leu Leu Leu Ala Asn Lys Ala His Ser Arg Ser Ser Ser Gly Glu Thr Pro Ala Gln Pro Glu Lys Thr Ser Gly Met Glu Val Ala Ser Tyr Leu Val Ala Gln Tyr Gly Glu Gln Arg Ala Trp Asp Leu Ala Leu His Thr Trp Glu Gln Met Gly Leu Arg Ser Leu Cys Ala Gln Ala Gln Glu Gly Ala Gly His Ser Pro Ser Phe Pro Tyr Ser Pro Ser Glu Pro His Leu Gly Ser Pro Ser Gln Pro Thr 

Ser Thr Ala Val Leu Met Pro Trp Ile His Glu Leu Pro Ala Gly Cys

115 120 125

Thr Gln Gly Ser Glu Arg Arg Val Leu Arg Gln Leu Pro Asp Thr Ser

130 135 140

Pro Ser Ser Pro Asp His Glu Ser Pro Ser Gln Glu Ser Pro Asn Ala 165 170 175

Pro Thr Ser Thr Ala Val Leu Gly Ser Trp Gly Ser Pro Pro Gln Pro
180 185 190

Ser Leu Ala Pro Arg Glu Gln Glu Ala Pro Gly Thr Gln Trp Pro Leu
195 200 205

Asp Glu Thr Ser Gly Ile Tyr Tyr Thr Glu Ile Arg Glu Arg Glu Arg
210 215 220

Glu Lys Ser Glu Lys Gly Arg Pro Pro Trp Ala Ala Val Val Gly Thr
225 230 235 240

Pro Pro Gln Ala His Thr Ser Leu Gln Pro His His His Pro Trp Glu
245 250 255

Pro Ser Val Arg Glu Ser Leu Cys Ser Thr Trp Pro Trp Lys Asn Glu
260 265 270

Asp Phe Asn Gln Lys Phe Thr Gln Leu Leu Leu Gln Arg Pro His Pro Arg Ser Gln Asp Pro Leu Val Lys Arg Ser Trp Pro Asp Tyr Val Glu Glu Asn Arg Gly His Leu Ile Glu Ile Arg Asp Leu Phe Gly Pro Gly Leu Asp Thr Gln Glu Pro Arg Ile Val Ile Leu Gln Gly Ala Ala Gly Ile Gly Lys Ser Thr Leu Ala Arg Gln Val Lys Glu Ala Trp Gly Arg Gly Gln Leu Tyr Gly Asp Arg Phe Gln His Val Phe Tyr Phe Ser Cys Arg Glu Leu Ala Gln Ser Lys Val Val Ser Leu Ala Glu Leu Ile Gly Lys Asp Gly Thr Ala Thr Pro Ala Pro Ile Arg Gln Ile Leu Ser Arg Pro Glu Arg Leu Leu Phe Ile Leu Asp Gly Val Asp Glu Pro Gly

Trp Val Leu Gln Glu Pro Ser Ser Glu Leu Cys Leu His Trp Ser Gln

420 425 430

Pro Gln Pro Ala Asp Ala Leu Leu Gly Ser Leu Leu Gly Lys Thr Ile
435
440
445

Leu Pro Glu Ala Ser Phe Leu Ile Thr Ala Arg Thr Thr Ala Leu Gln
450 455 460

Asn Leu Ile Pro Ser Leu Glu Gln Ala Arg Trp Val Glu Val Leu Gly
465 470 475 480

Phe Ser Glu Ser Ser Arg Lys Glu Tyr Phe Tyr Arg Tyr Phe Thr Asp
485 490 495

Glu Arg Gln Ala Ile Arg Ala Phe Arg Leu Val Lys Ser Asn Lys Glu
500 505 510

Leu Trp Ala Leu Cys Leu Val Pro Trp Val Ser Trp Leu Ala Cys Thr
515 520 525

Cys Leu Met Gln Gln Met Lys Arg Lys Glu Lys Leu Thr Leu Thr Ser
530 535 540

Lys Thr Thr Thr Thr Leu Cys Leu His Tyr Leu Ala Gln Ala Leu Gln 545 550 550 560

Ala Gln Pro Leu Gly Pro Gln Leu Arg Asp Leu Cys Ser Leu Ala Ala 565 570 575 Glu Gly Ile Trp Gln Lys Lys Thr Leu Phe Ser Pro Asp Asp Leu Arg Lys His Gly Leu Asp Gly Ala Ile Ile Ser Thr Phe Leu Lys Met Gly Ile Leu Gln Glu His Pro Ile Pro Leu Ser Tyr Ser Phe Ile His Leu Cys Phe Gln Glu Phe Phe Ala Ala Met Ser Tyr Val Leu Glu Asp Glu Lys Gly Arg Gly Lys His Ser Asn Cys Ile Ile Asp Leu Glu Lys Thr Leu Glu Ala Tyr Gly Ile His Gly Leu Phe Gly Ala Ser Thr Thr Arg Phe Leu Leu Gly Leu Leu Ser Asp Glu Gly Glu Arg Glu Met Glu Asn Ile Phe His Cys Arg Leu Ser Gln Gly Arg Asn Leu Met Gln Trp Val Pro Ser Leu Gln Leu Leu Gln Pro His Ser Leu Glu Ser Leu His

Cys Leu Tyr Glu Thr Arg Asn Lys Thr Phe Leu Thr Gln Val Met Ala

725 730 735

His Phe Glu Glu Met Gly Met Cys Val Glu Thr Asp Met Glu Leu Leu
740 745 750

E.4

Val Cys Thr Phe Cys Ile Lys Phe Ser Arg His Val Lys Lys Leu Gln
755 760 765

Leu Ile Glu Gly Arg Gln His Arg Ser Thr Trp Ser Pro Thr Met Val
770 775 780

Val Leu Phe Arg Trp Val Pro Val Thr Asp Ala Tyr Trp Gln Ile Leu
785 790 795 800

Phe Ser Val Leu Lys Val Thr Arg Asn Leu Lys Glu Leu Asp Leu Ser 805 810 815

Gly Asn Ser Leu Ser His Ser Ala Val Lys Ser Leu Cys Lys Thr Leu 820 825 830

Arg Arg Pro Arg Cys Leu Leu Glu Thr Leu Arg Leu Ala Gly Cys Gly 835 840 845

Leu Thr Ala Glu Asp Cys Lys Asp Leu Ala Phe Gly Leu Arg Ala Asn 850 855 860

Gln Thr Leu Thr Glu Leu Asp Leu Ser Phe Asn Val Leu Thr Asp Ala 865 870 875 880 Gly Ala Lys His Leu Cys Gln Arg Leu Arg Gln Pro Ser Cys Lys Leu 885 890 895

Gln Arg Leu Gln Leu Val Ser Cys Gly Leu Thr Ser Asp Cys Cys Gln
900 905 910

Asp Leu Ala Ser Val Leu Ser Ala Ser Pro Ser Leu Lys Glu Leu Asp
915 920 925

Leu Gln Gln Asn Asn Leu Asp Asp Val Gly Val Arg Leu Leu Cys Glu 930 935 940

Gly Leu Arg His Pro Ala Cys Lys Leu Ile Arg Leu Gly Lys Pro Ser 945 950 955 960

Val Met Thr Pro Thr Glu Gly Leu Asp Thr Gly Glu Met Ser Asn Ser
965 970 975

Thr Ser Ser Leu Lys Arg Gln Arg Leu Gly Ser Glu Arg Ala Ala Ser 980 985 990

His Val Ala Gln Ala Asn Leu Lys Leu Leu Asp Val Ser Lys Ile Phe
995 1000 1005

Pro Ile Ala Glu Ile Ala Glu Glu Ser Ser Pro Glu Val Val Pro Val
1010 1015 1020

Glu Leu Leu Cys Val Pro Ser Pro Ala Ser Gln Gly Asp Leu His Thr

1025 1030 1035 1040

Lys Pro Leu Gly Thr Asp Asp Phe Leu Gly Pro Glu Gly Asn Val

1045 1050 1055

Asp Val Glu Leu Ile Asp Lys Ser Thr Asn Arg Tyr Ser Val Trp Phe

1060 1065 1070

Pro Thr Ala Gly Trp Tyr Leu Trp Ser Ala Thr Gly Leu Gly Phe Leu
1075 1080 1085

Val Arg Asp Glu Val Thr Val Thr Ile Ala Phe Gly Ser Trp Ser Gln
1090 1095 1100

His Leu Ala Leu Asp Leu Gln His His Glu Gln Trp Leu Val Gly Gly
1105 1110 1115 1120

Pro Leu Phe Asp Val Thr Ala Glu Pro Glu Glu Ala Val Ala Glu Ile
1125 1130 1135

His Leu Pro His Phe Ile Ser Leu Gln Gly Glu Val Asp Val Ser Trp

1140 1145 1150

Phe Leu Val Ala His Phe Lys Asn Glu Gly Met Val Leu Glu His Pro 1155 1160 1165

Ala Arg Val Glu Pro Phe Tyr Ala Val Leu Glu Ser Pro Ser Phe Ser 1170 1175 1180 Leu Met Gly Ile Leu Leu Arg Ile Ala Ser Gly Thr Arg Leu Ser Ile

1185 1190 1195 1200

Pro Ile Thr Ser Asn Thr Leu Ile Tyr Tyr His Pro His Pro Glu Asp
1205 1210 1215

Ile Lys Phe His Leu Tyr Leu Val Pro Ser Asp Ala Leu Leu Thr Lys
1220 1225 1230

Ala Ile Asp Asp Glu Glu Asp Arg Phe His Gly Val Arg Leu Gln Thr
1235 1240 1245

Ser Pro Pro Met Glu Pro Leu Asn Phe Gly Ser Ser Tyr Ile Val Ser
1250 1255 1260

Asn Ser Ala Asn Leu Lys Val Met Pro Lys Glu Leu Lys Leu Ser Tyr 1265 1270 1275 1280

Arg Ser Pro Gly Glu Ile Gln His Phe Ser Lys Phe Tyr Ala Gly Gln
1285 1290 1295

Met Lys Glu Pro Ile Gln Leu Glu Ile Thr Glu Lys Arg His Gly Thr
1300 1305 1310

Leu Val Trp Asp Thr Glu Val Lys Pro Val Asp Leu Gln Leu Val Ala
1315 1320 1325

Ala Ser Ala Pro Pro Pro Phe Ser Gly Ala Ala Phe Val Lys Glu Asn

1330 1335 1340

His Arg Gln Leu Gln Ala Arg Met Gly Asp Leu Lys Gly Val Leu Asp 1345 1350 1355 1360

Asp Leu Gln Asp Asn Glu Val Leu Thr Glu Asn Glu Lys Glu Leu Val
1365 1370 1375

Glu Gln Glu Lys Thr Arg Gln Ser Lys Asn Glu Ala Leu Leu Ser Met
1380 1385 1390

Val Glu Lys Lys Gly Asp Leu Ala Leu Asp Val Leu Phe Arg Ser Ile 1395 1400 1405

Ser Glu Arg Asp Pro Tyr Leu Val Ser Tyr Leu Arg Gln Gln Asn Leu
1410 1415 1420

<210> 13

<211> 32

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 13

ccgaattcac catggctggc ggagcctggg gc

<210> 14	
<211> 34	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Description of Artificial Sequence: Primer	
<400> 14	
ccgctcgagt caacagaggg ttgtggtggt cttg	34
<210> 15	
<211> 31	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Description of Artificial Sequence: Primer	
<400> 15	
cccgaattcg aacctcgcat agtcatactg c	31
<210> 16	
<211> 30	

<212> DNA

<213> Artificial Sequence	
<220>	
<223> Description of Artificial Sequence: Primer	
<400> 16	
gtcccacaac agaattcaat ctcaacggtc	30
<210> 17	
<211> 21	
<212> DNA	
<213> Homo sapiens	
<400> 17	
tgtgatgaga gaagcggtga c	21
<210> 18	
<211> 30	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Description of Artificial Sequence: Primer	
<400> 18	

ccgctcgagc aaagaagggt cagccaaagc

<210> 19 <211> 209 <212> PRT <213> Homo sapiens <400> 19 Ile Val Ile Leu Gln Gly Ala Ala Gly Ile Gly Lys Ser Ile Leu Ala Arg Gln Val Lys Glu Ala Trp Gly Arg Gly Gln Leu Tyr Gly Asp Arg Phe Gln His Val Phe Tyr Phe Ser Cys Arg Glu Leu Ala Gln Ser Lys Val Val Ser Leu Ala Glu Leu Ile Gly Lys Asp Gly Thr Ala Thr Pro Ala Pro Ile Arg Gln Ile Leu Ser Arg Pro Glu Arg Leu Leu Phe Ile Leu Asp Gly Val Asp Glu Pro Gly Trp Val Leu Gln Glu Pro Ser Ser Glu Leu Cys Leu His Trp Ser Gln Pro Gln Pro Ala Asp Ala Leu Leu

Gly Ser Leu Leu Gly Lys Thr Ile Leu Pro Glu Ala Ser Phe Leu Ile
115 120 125

Thr Ala Arg Thr Thr Ala Leu Gln Asn Leu Ile Pro Ser Leu Glu Gln
130 135 140

Ala Arg Trp Val Glu Val Leu Gly Phe Ser Glu Ser Ser Arg Lys Glu
145 150 155 160

Tyr Phe Tyr Arg Tyr Phe Thr Asp Glu Arg Gln Ala Ile Arg Ala Phe

165 170 175

Arg Leu Val Lys Ser Asn Lys Glu Leu Trp Ala Leu Cys Leu Val Pro 180 185 190

Trp Val Ser Trp Leu Ala Cys Thr Cys Leu Met Gln Gln Met Lys Arg
195 200 205

Lys

<210> 20

<211> 212

<212> PRT

<213> Homo sapiens

<400> 20

Thr Ile Phe I	le Leu Gly	Asp Ala Gly	y Val Gly Lys	Ser Met Leu Leu
1	5		10	15
Gln Arg Leu G				Asp Ala Gly Val
	20	25	5	30
Ive Pha Pha P	Dha His Dha	Ara Cue Ara	y Mat Phe Ser	Cys Phe Lys Glu
Tys File File F	the his the	40	g Met The Ser	45
33		10		
Ser Asp Arg L	Leu Cys Leu	Gln Asp Le	ı Leu Phe Lys	His Tyr Cys Tyr
50		55	60	
Pro Glu Arg A	Asp Pro Glu	Glu Val Phe	e Ala Phe Leu	Leu Arg Phe Pro
65	70		75	80
His Val Ala I	Leu Phe Thr	Phe Asp Gly	y Leu Asp Glu	Leu His Ser Asp
	85		90	95
			a a b	
				Trp Glu Pro Ala
1	100	10	0	110
His Pro Leu V	/al Leu Leu	Ala Asn Le	ı Leu Ser Gly	Lys Leu Leu Lys
115		120	-	125
Gly Ala Ser I	Lys Leu Leu	Thr Ala Arc	g Thr Gly Ile	Glu Val Pro Arg
130		135	140	
Gln Phe Leu A	Arg Lys Lys	Val Leu Le	u Arg Gly Phe	Ser Pro Ser His
145	150		155	160

Leu Arg Ala Tyr Ala Arg Arg Met Phe Pro Glu Arg Ala Leu Gln Asp Arg Leu Leu Ser Gln Leu Glu Ala Asn Pro Asn Leu Cys Ser Leu Cys Ser Val Pro Leu Phe Cys Trp Ile Ile Phe Arg Cys Phe Gln His Phe Arg Ala Ala Phe <210> 21 <211> 219 <212> PRT <213> Homo sapiens <400> 21 Trp Val Thr Ile His Gly Met Ala Gly Cys Gly Lys Ser Val Leu Ala Ala Glu Ala Val Arg Asp His Ser Leu Leu Glu Gly Cys Phe Pro Gly Gly Val His Trp Val Ser Val Gly Lys Gln Asp Lys Ser Gly Leu Leu

Met Lys Leu Gln Asn Leu Cys Thr Arg Leu Asp Gln Asp Glu Ser Phe Ser Gln Arg Leu Pro Leu Asn Ile Glu Glu Ala Lys Asp Arg Leu Arg Ile Leu Met Leu Arg Lys His Pro Arg Ser Leu Leu Ile Leu Asp Asp Val Trp Asp Ser Trp Val Leu Lys Ala Phe Asp Ser Gln Cys Gln Ile Leu Leu Thr Thr Arg Asp Lys Ser Val Thr Asp Ser Val Met Gly Pro Lys Tyr Val Val Pro Val Glu Ser Ser Leu Gly Lys Glu Lys Gly Leu Glu Ile Leu Ser Leu Phe Val Asn Met Lys Lys Ala Asp Leu Pro Glu Gln Ala His Ser Ile Ile Lys Glu Cys Lys Gly Ser Pro Leu Val Val 

Tyr Leu Lys Gln Leu Gln Asn Lys Gln Phe Lys Arg Ile Arg Lys Ser

Ser Leu Ile Gly Ala Leu Leu Arg Asp Phe Pro Asn Arg Trp Glu Tyr

195 200 205

Ser Ser Tyr Asp Tyr Glu Ala Leu Asp Glu Ala 210 215

<210> 22

<211> 221

<212> PRT

<213> Caenorhabditis elegans

<400> 22

Phe Leu Phe Leu His Gly Arg Ala Gly Ser Gly Lys Ser Val Ile Ala

1 5 10 15

Ser Gln Ala Leu Ser Lys Ser Asp Gln Leu Ile Gly Ile Asn Tyr Asp
20 25 30

Ser Ile Val Trp Leu Lys Asp Ser Gly Thr Ala Pro Lys Ser Thr Phe

35 40 45

Asp Leu Phe Thr Asp Ile Leu Leu Met Leu Lys Ser Glu Asp Asp Leu 50 55 60

Leu Asn Phe Pro Ser Val Glu His Val Thr Ser Val Val Leu Lys Arg
65 70 75 80

Met Ile Cys Asn Ala Leu Ile Asp Arg Pro Asn Thr Leu Phe Val Phe

90 95

Asp Gln Val Val Gln Glu Glu Thr Ile Arg Trp Ala Gln Glu Leu Arg

100 105 110

Leu Arg Cys Leu Val Thr Thr Arg Asp Val Glu Ile Ser Asn Ala Ala
115 120 125

Ser Gln Thr Cys Glu Phe Ile Glu Val Thr Ser Leu Glu Ile Asp Glu
130 135 140

Cys Tyr Asp Phe Leu Glu Ala Tyr Gly Met Pro Met Pro Val Gly Glu
145 150 155 160

Lys Glu Glu Asp Val Leu Asn Lys Thr Ile Glu Leu Ser Ser Gly Asn

165 170 175

Pro Ala Thr Leu Met Met Phe Phe Lys Ser Cys Glu Pro Lys Thr Phe
180 185 190

Glu Lys Met Ala Gln Leu Asn Asn Lys Leu Glu Ser Arg Gly Leu Asx
195 200 205

Gly Asx Glu Cys Ile Thr Pro Tyr Ser Tyr Lys Ser Leu
210 215 220

<210> 23

<211> 91

<212> PRT

<213> Homo sapiens

<400> 23 .

Leu Asp Ala Pro Gln Leu Leu His Phe Val Asp Gln Tyr Arg Glu Gln

1 5 10 15

Leu Ile Ala Arg Val Thr Ser Val Glu Val Val Leu Asp Lys Leu His
20 25 30

Gly Gln Val Leu Ser Gln Glu Gln Tyr Glu Arg Val Leu Ala Glu Asn
35 40 45

Thr Arg Pro Ser Gln Met Arg Lys Leu Phe Ser Leu Ser Gln Ser Trp
50 55 60

Asp Arg Lys Cys Lys Asp Gly Leu Tyr Gln Ala Leu Lys Glu Thr His
65 70 75 80

Leu Ile Met Glu Leu Trp Glu Lys Gly Ser Lys

85 90

<210> 24

<211> 91

<212> PRT

<213> Homo sapiens

<400> 24

Met Asp Ala Lys Ala Arg Asn Cys Leu Leu Gln His Arg Glu Ala Leu

Glu Lys Asp Ile Lys Thr Ser Tyr Ile Met Asp His Met Ile Ser Asp

Gly Phe Leu Thr Ile Ser Glu Glu Glu Lys Val Arg Asn Glu Pro Thr

Gln Gln Arg Ala Ala Met Leu Ile Lys Met Ile Leu Lys Lys Asp

Asn Asp Ser Tyr Val Ser Phe Tyr Asn Ala Leu Leu His Glu Gly Tyr

Lys Asp Leu Ala Ala Leu Leu His Asp Gly Ile

<210> 25

<211> 90

<212> PRT

<213> Caenorhabditis elegans

<400> 25

Glu Ser His Pro His Ile Gln Leu Leu Lys Ser Asn Arg Glu Leu Leu

Val Thr His Ile Arg Asn Thr Gln Cys Leu Val Asp Asn Leu Leu Lys 25 30 20 Asn Asp Tyr Phe Ser Ala Glu Asp Ala Glu Ile Val Cys Ala Cys Pro 35 40 45 Thr Gln Pro Asp Lys Tyr Arg Lys Ile Leu Asp Leu Val Gln Ser Lys 60 50 55 Gly Glu Glu Val Ser Glu Phe Phe Leu Tyr Leu Leu Gln Gln Leu Ala 80 65 70 75 Asp Ala Tyr Val Asp Leu Arg Pro Trp Leu 85 90 <210> 26 <211> 88 <212> PRT <213> Caenorhabditis elegans

<400> 26
Leu Cys Glu Ile Glu Cys Arg Ala Leu Ser Thr His Thr Arg Leu Ile
1 5 10 15

His Asp Phe Glu Pro Arg Asp Ala Leu Thr Tyr Leu Glu Gly Lys Asn
20 25 30

Ile Phe Thr Glu His Ser Glu Leu Ile Ser Lys Met Ser Thr Arg Leu Glu Arg Ile Ala Asn Phe Leu Arg Ile Tyr Arg Arg Gln Ala Ser Glu Leu Gly Pro Leu Ile Asp Phe Phe Asn Tyr Asn Asn Gln Ser His Leu Ala Asp Phe Leu Glu Gln Tyr Ile <210> 27 <211> 91 <212> PRT <213> Caenorhabditis elegans <400> 27 Met Arg Gln Asp Arg Arg Ser Leu Leu Glu Arg Asn Ile Met Met Phe Ser Ser His Leu Lys Val Asp Glu Ile Leu Glu Val Leu Ile Ala Lys Gln Val Leu Asn Ser Asp Asn Gly Asp Met Ile Asn Ser Cys Gly Thr 

Val Arg Glu Lys Arg Arg Glu Ile Val Lys Ala Val Gln Arg Arg Gly

50 55 60

Asp Val Ala Phe Asp Ala Phe Tyr Asp Ala Leu Arg Ser Thr Gly His
65 70 75 80

Glu Gly Leu Ala Glu Val Leu Glu Pro Leu Ala 85 90

<210> 28

<211> 95

<212> PRT

<213> Homo sapiens

<400> 28

Met Glu Ala Arg Asp Lys Gln Val Leu Arg Ser Leu Arg Leu Glu Leu

1 5 10 15

Gly Ala Glu Val Leu Val Glu Gly Leu Val Leu Gln Tyr Leu Gln Tyr

20 25 30

Gln Glu Gly Ile Leu Thr Glu Asn His Ile Gln Glu Ile Asn Ala Gln
35 40 45

Thr Thr Gly Leu Arg Lys Thr Met Leu Leu Leu Asp Ile Leu Pro Ser
50 55 60

Arg Gly Pro Lys Ala Phe Asp Ile Phe Leu Asp Ser Leu Gln Glu Phe

65 70 75 . 80

Pro Trp Val Arg Glu Lys Leu Lys Lys Ala Arg Glu Glu Ala Met

85 90 95

<210> 29

<211> 91

<212> PRT

<213> Homo sapiens

<400> 29

Met His Pro His His Gln Glu Thr Leu Lys Lys Asn Arg Val Val Leu

1 5 10 15

Ala Lys Gln Leu Leu Ser Glu Leu Leu Glu His Leu Leu Glu Lys
20 25 30

Gln Ile Ile Thr Leu Glu Met Arg Glu Leu Ile Gln Ala Lys Val Gly
35 40 45

Ser Phe Ser Gln Asn Val Glu Leu Leu Asn Leu Leu Pro Lys Arg Gly
50 55 60

Pro Gln Ala Phe Asp Ala Phe Cys Glu Ala Leu Arg Glu Thr Lys Gln 65 70 75 80

Gly His Leu Arg Asp Met Leu Leu Thr Thr Leu

<210> 30

<211> 93

<212> PRT

<213> Homo sapiens

<400> 30

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Gly Ser Arg Arg Asp Gln Ala Arg Gln Leu Asp Ile Asp Leu Glu Thr
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Arg Gly Ser Gln Ala Leu Pro Leu Phe Ile Ser Cys Leu Glu Asp Thr
65 70 75 80

Gly Gln Asp Met Leu Ala Ser Phe Leu Arg Thr Asn Arg
85 90